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WATCH FOR THE I. W. W.!

To all intents and purposes the Industrial Workers of the World, as the members of this organization are pleased to call themselves, is a new combination that is a menace to the wellfare of the honest workman as well as the manufacturer. The name adopted is a misnomer and should be changed to the Industrial Wreckers of the World. Some of its leaders and agitators are composed of deported foreigners and Americans with a cloudy past. Its membership is of three classes, by far the larger part being the ignorant riff-raff of the southern European countries gathered together in the common dumping ground—America. The smaller proportion are intimidated workmen who realize that police protection is inadequate and a sprinkling of the hoodlum class always to be found in every country hanging on the skirts of an industrial disturbance looking for an easy living, as camp-followers trail an army in wartime.

The following reprint from one of the I. W. W. circulars, which are being circulated throughout the country, through the South as well as through the North, will give an insight into the methods of this association:

"1. All members of the I. W. W. must at all times act in concert. For example: In case of a strike in one factory, every worker must go out, and leave the factory deserted entirely. And all workers in all industries throughout the jurisdiction of the I. W. W. must act as one against that factory.

"2. All workers of all Industrial Unions and Departments may be called out on strike if need be.

"3. The hours may be decreased without strike. For example: Work eight hours and no longer, and ignore the wishes of the boss.

"4. 'Passive Strike,' that is, to obey the rules to the letter, and thereby force the employer to come to terms. This method has proved successful on railroad systems in Austria and Italy.

"5. Temporary Strike, that is, go on strike one day, go back to work the next, and so on, if deemed necessary to win the point in question.

"6. Opportune Strike, that is, go on strike when the capitalist has orders that must be filled immediately, or when similar conditions give promise of victory.

"7. If demands are not granted, turn out poor work, or work slow, so as to decrease profits, until the employer will be made to understand that he will gain most by granting the demands.

"8. In case of a capitalist injunction against strikers, violate it; disobey it; let the strikers and others go to jail if necessary. That would cost so much that the injunction would be dispensed with.

"9. Final Universal Strike, that is, to remain within the industrial institutions, lock the employers out for good as owners and parasites, and give them a chance to become useful toilers."

It will not be wise for any manufacturer in any section to sit smugly by and say to himself that his mill is exempt from the possibilities of such a combination. Recall the

quotation from the address of President Hobbs before the National Association of Cotton Manufacturers:

"The socialism that demonstrates in the streets of our big cities, the socialism that takes occasion to turn an industrial dispute into a riot, the socialism that loses no opportunity to inflict a wound upon the peace of the community, the socialism that waves red flags and prints incendiary literature, is crime. We may just as well face that fact now as have it forced upon us by the disasters of a future which we will have made only the more disastrous because we have tampered with it. Behind the gaudily painted visage of socialism, with its promise of a golden age, are the snaky locks and the gory fangs of crime, nothing more nor less, and the sooner we recognize that fact and deal with the question upon that basis, the sooner we shall have put ourselves in a way to safeguard for the future those liberties of the individual which our ancestors fought, bled and died to secure one hundred and twenty-five years ago."

The use of the word "socialism" in this quotation is, perhaps, unfortunate, in as much as modern socialists do not countenance all of the anarchistic teachings of the syndicalist. They seem to regard the syndicalist as a kind of retrovert to the infancy of the socialistic movement. However, the facts remain that the acts cited are not only countenanced, but advocated by certain leaders of the I. W. W.; and that such acts constitute crime. Crime reaches to the far corners of the world and no town is so small, or no mill organization so perfect, as to be entirely exempt from its corroding action.

This is an occasion for the manufacturer and the honest working man to join in their efforts to suppress this industrial evil. Watch out for the stranger who foments trouble. He is much more interested in securing an easy living from the pockets of the working man than in the final outcome of the strife he inaugurates.

Pick up a daily paper and statements like these occupy front page positions:

"Five thousand seven hundred, out at Perth Amboy, Union leaders fear I. W. W. intends general stampede of workers and are using every effort to prevent its spread. This strike is laid to an agitator for the I. W. W. from Chicago. William D. Haywood, head of the Industrial Workers of the World will arrive in this city tomorrow morning from Pittsburg to organize the striking forces."

"Four shot, one dying in Hastings strike riot," says another paper, "trouble starts with the arrival of Dominick Smith, who had been active in organizing the strike."

These quotations illustrate graphically a certain set of conditions. The fact that the Hasting's rioters were largely Hungarians does not increase the chances for peaceful conditions in some other town where Hungarians are in the minority. It is not so much the nationality of the people as the degree of their intelligence and their temperament that causes them to follow blindly along the paths laid out for them by some paid agitator.

The temporary, but in some cases impossible remedy is to eliminate the agitator. See to it that the Trautmans, Haywoods and Dominick Smiths, are kept moving. There should be steady employment for disturbance breeders on the prison rock piles, but with the present laws it is sometimes difficult to furnish them with such a useful occupation.

Changes in the immigration laws are advocated by some and the result of such a move might be beneficial. Such beneficient effects would only be felt in the future, however, while the individual problem may arise this year, this month, or even today.

Not only does this organization seek to create industrial disturbances, but in order to protect their riots from military intervention they are striking at the very roots of the national government by urging the young men of the country not to join the army and the navy.

One of the I. W. W. circulars prints a signed article by a Walker C. Smith, entitled "War and the Workers." While too inane for reproduction, still the writer should be, and in any other country would be, convicted and properly punished for *Lese Majeste*.

The membership of this syndicalistic organization is today merely nominal, but the serious importance of the movement is well illustrated by the statistics at Lawrence. With only 300 local members in January, June found an army of 10,000 at the command of their agitator leaders.

There are thousands of honest men and women in this country, living according to the Golden Rule and doing right by their fellow laborers, whether they be employers or employees. American character has been tried and proven too often to successfully indict it by sensational head lines, or by the acts of the syndicalist. John Adams left Philadelphia in disgust in 1774, because he said that city was too indifferent and too happy to ever be stirred by the spirit of independence. Yet the very men who were that day accused of a life of ease and a greed for wealth too great to be stirred by the spirit of patriotism, were the very men who shouldered their muskets, gave up their homes and suffered the horrors and hardships of Valley Forge for the abstract principle of no taxation without representation.

When we read of the heroic sacrifices of our forefathers in the stirring years of the revolution; when we remember the millions of volunteers who went to the front from both North and South during the civil war in defense of a principle; when we recall the bloody streets of El Cana and the fighting on the slopes of San Juan in an effort to aid an oppressed people; when we remember the noblity and tenderness of the American seamen after the sinking of the Spanish ships at Santiago, where Wainwright of the Gloucester was as eager to rescue as he had been to avenge the Maine, and when Phillips of the Texas cried out, "Don't cheer, boys, those poor devils are dying"; with the records of generation after generation open before us to such deeds as these, we may safely challenge all history to produce a finer type of character than this country can and does produce in time of danger or distress.

That kind of character may be safely trusted to finally settle any problem that may arise, industrial or otherwise, in the interest and for the common good and prosperity of all the people of this nation. It simply needs to be awakened to the serious nature of this syndicalistic uprising. The result is already an assured fact.

If you would have a faithful servant and one whom you like, serve yourself.

Diligence is the mother of good luck.

BENIGN PROTECTION.

A Further Consideration of the High Cost of Living—Nothing that Will Promote Sales now Regarded Extravagant if the Cost of such Promotion Can be Shipped forward with the Goods.

(*Contributed to* COTTON).

BY FRED W. SIMONS, EX-PRESIDENT NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS.

CHAPTER 3.

(*Copyright by the Author.*)

I notice that the worthy Editor of "COTTON" in an editorial note refers to my little effort as "a presentation of the principles of a protective tariff from a new angle." I do not know whether he is correct or not but I am not trying to present the subject from any angle whatever.

In this little discussion of the tariff question I am endeavoring to view the subject from a sufficient distance to permit of bringing the question as a whole within the mental horizon; from such a distance much detail is of necessity lost to sight, but it is only from such a distance that one can see the relative importance of the elements entering into the problem. You can't view a mountain through a microscope; you can't get a mountain under a microscope. If you wish to see the construction of a pebble from a mountain brook or a leaf from the forest on the mountain side you put them under the lens and your microscope will show you much of interest if you take interest in such things; but if you wish to see the conformation of a mountain you should stand off and use the field glass.

It seems to me a crying need of our age that we should take broader, more comprehensive views of public questions; we specialize and scrutenize and analize until we know in detail everything pertaining to an important subject except its relation to other important subjects, and the right way to make use of it. Consequenly we are continually building up with one hand and pulling down with the other.

Any competent physician will acknowledge that correct diagnosis is nine-tenths of his art, and that if he can find out what the trouble is and trace that trouble to its efficient cause his treatment of a case is clearly indicated—is in fact almost a matter of exact science.

So in treatment of ailments of the body politic; if we can get a clear perception of actually existing conditions, locate the disturbing organ, (institution of society) trace its disordered action to the source of its origin, (perhaps in some other organ or institution of society) then, and not till then, are we in a position to prescribe intelligently as political physicians.

Pursuing our inquiry along the broad lines thus indicated and considering all the facts disclosed in their relation to the public welfare, we shall find our various lines of thought converging in the rather startling conclusion that if we could throw nine-tenths of our text books on economics into the bottomless pit and unlearn what we have learned from them, the solution of the problem confronting us today would be greatly accelerated.

It may be urged, perhaps with considerable show of justice, that my acquaintance with the text books in question is not suffiiciently intimate to justify so drastic a comment; but we have a right to judge a tree by its fruits, and if the political economists have any adequate knowledge of price analysis, of the chemistry of values shall I say, and of the vital manner in which the composition of prices affects the welfare of the people, then they have not been very successful in teaching it; otherwise the high cost of living would not be a problem, would not exist at all.

We know a very great deal about market values, but we don't know how market values affect the public welfare. We have stock exchanges, produce exchanges, cotton exchanges, ticker service, cablegrams, market letters and daily market reports in every newspaper, but we don't know whether high prices or low prices are best calculated to promote the prosperity of the people as a whole.

As a result of this lack of knowledge respecting the relation of market values to the general welfare, the people of the United States are unable to make up their minds whether to advocate protection as a means of securing high wages, or free trade as a means of securing cheap merchandise.

True, both policies have been quite extensively exploited and we find that under free trade Great Britain prospered enormously, taking first place among the nations of the world not only in regard to the volume of her business and the wealth accumulated by the classes but also in respect to the betterment of the condition of the masses of the people. Yet this progress was halted more than twenty years ago and the struggle for existance in which the masses of the English people are now engaged presents perhaps the most pathetic aspect of modern civilization; and the English people, after worshiping at the shrine of Richard Cobden and John Bright for half a century don't know whether to abandon the free trade policy or not.

The United states on the other hand has tried out the policy of protection almost as faithfully, and has also prospered enormously, but is undecided as to whether or not the same policy that has enabled the people to set up a standard of wages never before approached in any country is also responsible for the maintenance of such a high standard of values for the products of labor as to cancel the advantage of high wages; and being in this predicament the people of the United States don't know whether to abandon the policy of protection or not.

Incidentally, a politicial party has sprung into existance which, while still claiming allegiance to the principles of protection, professes to believe that they have been injudiciously and unfairly applied to the grevious injury of the country's best interests. These gentlemen profess to have discovered a principle or rule of application, the adoption of which, together with certain trade agreements with foreign countries (Reciprocity) to be entered into as opportun-

D. D. Felton, of Manchester, N. H., J. B. Fitch and M. A. Knipe, of Atlanta, Ga., are incorporators of a new business to be located in Atlanta. These men have bought the brush plant of Geo. E. McMurray and are fitting out a complete factory for the manufacture of all kinds of brushes. Particular attention will be given to the re-filling and repair of cylinders, cards, and tentering brushes for the mill trade. Mr. Fitch, the manager of the new company, has had eighteen years of experience with the S. A. Felton & Son Company of Manchester, N. H., and locates here in the South fully determined to establish the output of the new company upon as high a standard of quality and excellence. The new factory is located at 200½ Marietta St. Atlanta, Ga.

As a reliable sizing for warps THE ARABOL MFG. CO., 100 Williams St., New York, recommend their "Sizeoleum." It does not call for the addition of tallow. Southern manufacturers, in particular, are greatly pleased with it. It gives unexcelled results on warps for gray goods of the export grade and for converters' goods. Used with starch, (Arabol standard sizing starch), it works splendidly as a sizing for warps for sheetings, printcloths, shirting, duck and similar goods.

MANUEL OF DYEING, Published and distributed by the Cassella Color Co., 182 Front Street, New York.

A new and very much enlarged edition of the first volume of the Cassella Color Company's Manuals of Dyeing has just been issued from the press and far exceeds the first edition in scope of contents and variety of technical matter. It covers every phase of the application of the ordinary coloring matters to cotton in every stage of manufacture and in consequence will be found of extreme value to the practical cotton dyer, in whatever branch of the industry he may be engaged.

The volume is divided into eight distinct sections covering the general directions for the application of cotton colors, including special technical directions regarding the exhaustion of dye-baths, the matching of after-treated dyeings, the various phases of dyeing certain immedial colors and the new and important group of Hydron or vat colors, together with the practice of bleaching piece goods containing Hydron Blue, etc.

The dyeing of loose cotton and cotton yarn, including mercerized yarn, is fully described and is one of the most complete sections of the work. Owing to the growing importance of dyeing in mechanical appliances, the section on machine dyeing is quite up to date and the advanced dyer of cotton in the usual commercial forms will find every step of his work fully covered.

Warp dyeing, with special reference to the use of Diamine, Immedial and the new Hydron, "vat," colors is likewise very complete, together with important notes on the dyeing of warps in dressing. The dyeing of knit goods and hosiery is fully treated and special attention is given to the details of the preparatory treatment of this class of goods. The section on piece goods is very complete and the jigger, padding machine and continuous dyeing machine methods are amply treated.

The seventh section will be found very interesting on account of the wide variety in vegetable fibers and fabrics made therefrom there discussed and described, the dyeing of artificial silk being very thoroughly covered. The volume closes with a supplement containing the usual conversion tables, thermometer and hydrometer scales, weights and measures, etc., and a very complete index.

TURNER, TUCKER & CO., Bankers, 24 Milk St., Boston, Mass., have just issued a special stock, bank and trust company circular containing the latest compilations of New York, Boston, and Philadelphia bank and trust company statements for comparison and also much other valuable information which is relative to investment securities.

The old time belief that low interest bearing municipal bonds were the only safe "unlisted" securities available for conservative investors has now been effectually dispelled. The creation of many public service corporations, incident to the commercial development of new inventions and the improvement of old ones—electric light, gas, street railway, telephone and the like—together with a great expansion of industrial operations, has brought into the market a large class of high grade investment securities which, though unlisted, possess—in many cases—greater merit than do the long list of Stock Exchange issues.

Briefly summarized preferred stocks—listed or unlisted—possess practically all the merits and few of the disadvantages of a bond issue. They are usually a first lien in liquidation on property and assets; in many cases they share equally with the underlying securities in voting rights, in determining the management and in fixing the methods of handling the business; they are assured of a fixed return and their worth is enhanced by any business expansion that may be had. Their market is always broader and better than that of a bond and the holder need never take into account approaching maturity dates in estimating their real value. Unlike a bond, they are freed of a mass of legal technicalities and heavy expenses in the event of liquidation. In short, preferred stocks of genuine merit get practically the full benefit of the company's earning development without sacrificing anything in return for safety of principal.

Persons interested in this special circular may secure a copy by applying to the Boston office of the company.

Bolivian Tariff and Appraisement Schedule, published by the Pan American Union of which the Hon. John Barrett is Director General, Washington, D. C., 157 pages bound in paper.

This booklet which is published under date of March 1st, 1912, is a revision of the original schedule which was revised, translated and published by the Pan-American Union in its bulletin for June 1906. Since that time new modifications in the tariff schedules of Bolivia have made necessary a new revision of and addition to this tariff. In consequence, the Bolivian Congress on February 4th, 1911, enacted a law revising in general the tariff schedule and incorporating in the revision modifications made since the general revision of 1905. In this book these schedules appear with all the changes up to date in both English and Spanish. With no other country in South America has the trade of the United States in recent years increased so rapidly as it has with Bolvia, particularly imports to Bolivia from the United States. Ten or fifteen years ago American goods were almost unknown in Bolivia and even in 1904 when the trade had assumed some considerable proportions, it was only about $432,000. In 1910 it was equal to $2,-

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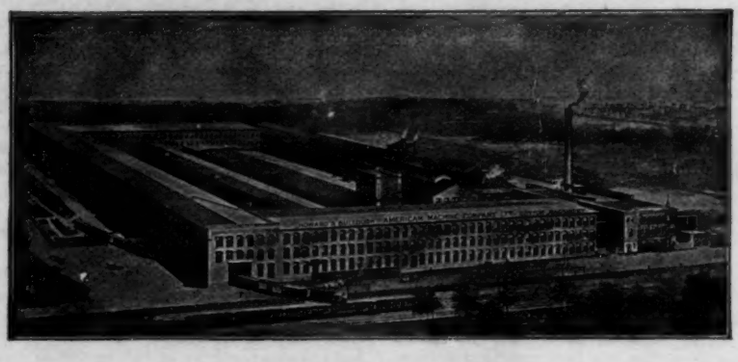

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WE INVITE YOUR INVESTIGATION AND COMPARISON

218,518, or an increase of over five times. Foreign exporters and others interested in Bolivian tariff regulation should communicate with the Pan American Union in connection with this new publication on the tariff and appraisement schedule.

The American Manufacturing Co., of 65 Wall St., New York, publish a unique little magazine, entitled *The Cord Age,* a copy of the April issue of which has just reached the editorial desk. This little booklet is devoted to rope and its various uses and is prepared in a thoroughly readable manner. The articles entitled "Notes of an American Traveler, or the American Man in Italy" is well worth the time and trouble necessary to secure a copy of this little booklet. According to the publishers, *The Cord Age* is a magazine devoted to more rope and they state further than your name on a postal card will pay for twelve issues and after that there is no telling what may happen. Best send a postal right now.

The Lowell Textile School, of Lowell, Mass., have just issued their Bulletin for 1912-1913. The steady growth of this school is well known among cotton manufacturers and its methods are receiving the highest praise in all departments of the textile industry. Its well known principal, Charles H. Eames, S. B., has gathered around him a splendid force of instructors and with the additions and enlargements that have taken place from year to year the school is no doubt in a better position now than ever in its existance to handle the largely increasing number of applications for scholarships received annually.

Notes from the Philadelphia Exhibition of the National Association of Hosiery and Underwear Manufacturers.

The wise forethought of the committee of arrangements in securing the larger and more commodious quarters this year for exhibition purposes, resulted in securing a greater number and variety of exhibits than ever before. Following are brief descriptions of some of the exhibits.

SCOTT & WILLIAMS, INC., of Boston had one of the most complete exhibits of knitting machines shown. These machines were all in operation and were watched with great interest by many of those attending the exhibition. Among these machines were two shirt machines having 14 needles to the inch. One was producing both men's and women's underwear of the one and one rib type, while the other was producing Swiss ribbed vests of fine quality. A 16 needle machine was working on light weight men's and women's underwear and it was claimed that this machine was the finest gauge latch needle machine built and through a special arrangement of jacks it was able to handle a very light weight yarn, thereby producing a fabric that was heretofore commercially impossible. Another new machine which was shown for the first time was a tape machine with a multiple head. Six heads were mounted on one frame and by a special arrangement of pulleys and cylinder design, it could be run very much faster than the tape machine heretofore used. They also had their standard automatic half-hose machine and hosiery ribber, and also a complete line of the well known Mayo models, which are produced by the Geo. D. Mayo Machine Co., that is associated with Scott & Williams, Inc. The Mayo Model B. Machine, which is of the revolving cylinder type and fitted with the Scott & Williams inserted wall cylinder is especially designed for plaiting work, yarn changing, etc., while the Model C, which is built on the stationary needle cylinder principle is much more like the Model A. The Model C., however is equipped with the Scott & Williams cylinder and is adapted for especially fine gauge work.

One of the most disagreeable operations in hosiery manufacture is the turning of the stocking properly. The securing of a stocking turning machine that will turn the finest as well as the heaviest of fabrics and not only turn the stock-

ing perfectly, but also lay them straight so that it is much easier for the operator to bunch them and keep them in dozen lots, is something that every hosiery manufacturer has always looked and longed for. The exhibit of SMITH, DRUM & CO., of Philadelphia at this exhibition had just such a stocking turning machine. On this machine it is claimed that an ordinary operator can turn at least 600 dozen a day, while an experienced operator is said to have practically no limit. They also had one of their hot plate presses with a new type of plate by which all leakage is avoided. Special attention was called to their method of supplying steam to their plate. They were also exhibiting some further developments in their hosiery singeing machine, which permitted of easy adjustment and other features. The fire extinguishing feature was also greatly improved. They also had a rotary dyeing machine for use on sulphur black. The exhibit was in charge of Robert P. Smith, and George E. Drum of the firm.

Booth 88 was one of the points of interest which everyone visited. This was where ALFRED SUTER, the well known textile engineer of New York had his interesting exhibit of yarn testing machines. This included a Baer testing apparatus with yarn numbering scale, for any kind of yarn which will give the number directly for a quick and accurate test; also reels with which to measure off the yarn required for the sizing test; and a yarn evener controller on which all defects were shown up at once, such as heavy and thin places. Several twist testers were also exhibited to determine the exact twist per inch in two ply yarns. Strength testers with the oil tank control, a universal balance for ascertaining counts of yarns in small lengths, such as can be unravelled from a sample knitted fabric, and a small Permutite water softening apparatus. This Permutite water softener is a new invention and was described in the dyeing, bleaching and finishing department of a recent issue of COTTON. Mr. Suter was in charge of his exhibit in person and was assisted by G. W. Stanton.

JAMES TAYLOR, of Philadelphia was exhibiting the Eureka electric stop motion for knitting machinery for which he is the agent. This attachment weights approximately four pounds and therefore it can be attached to any knitting machine, even to the smallest necktie machine which ordinarily will not admit of the attachment of a heavy device. The idea of this stop motion is to operate a mechanical device by electricity which is supplied either by a storage battery or a small generator. The breaking or running out of a thread or the result of a tangle or large knot is sufficient to stop the operation of the machine, thus causing a saving in seconds. Mr. Taylor who was in personal charge of the exhibit was also showing an improved compressed air grease cup made by the Universal Lubricator Co., of which he is the president. The cup works with compressed air instead of a spring or piston and is reported to have proved very successful.

The feature of the exhibit of the TOLHURST MACHINE WORKS, Troy, N. Y., was one of their open top extractors which was belt driven. This extractor is also made with a direct motor drive. This new open top extractor is attracting much attention. The three bearings which allow the case to ocillate in the extractor are entirely under the case and out of the operators way, which will allow trucks to be run close to the machine. The lubrications of all bearings is made possible by a mechanical oiling device and a centrifugal pump is directly connected with the basket spindle which can be run in either direction and throws a stream of oil into the bearing when in use. This oil flows back into a screened oil well to be used over and over again. The exhibit was in charge of S. A. Tolhurst and E. W. Vincent.

The U. S. HOFFMAN CO., of Syracuse, N. Y., was giving special attention to the operation of their F. F. F. Hoffman steam pressing machine which created a large amount of interest on account of the automatic structure of the machine, its elimination of unnecessary parts, there being no belts, pulleys, hangers, or any other installations required with the exception of one 1-inch steam pipe for operation, and quick action. It is claimed that this machine never breaks buttons, scorches garments or makes seconds. Inspection is done at the time of pressing thus saving both operators and time. Charles H. Lewis, vice president of the company was in charge, assisted by I. V. Howd, and H. O. Harding.

A most interesting exhibit of recent developments in knitting machinery manufacturing was seen at the section reserved for the WILDMAN MANUFACTURING CO., of Norristown, Pa. They had a number of machines in operation demonstrating the high quality of their work. Among these was the 3½-inch, two feed, French welt machine, 110 needles, cylinder and dial with two speed drive, running on 50's two ply lisle yarn. Also a half inch four needle cord machine for making cords for lumberman's mitts and similar work, running four threads of No. 5 cotton yarn and making 100 yards per hour. Then there was an 8 feed, 18 inch Swiss rib machine in operation with a combined positive and gravity takeup, running on 78 two ply yarn at 54 revolutions per minute. Also a 8 feed 13 inch, 10 cut French welt machine for making borders running on 14 singles at 40 revolutions per minute and making plain rib, single tuck, double tuck, cardigan, French welt, etc. Among the diffierent necktie machines made by this firm there were exhibited a 2¾ inch, two feed, four color machine equipped with an automatic striper on both feeds, and making both plain ribbed and accordian neckties. Also a single feed French welt machine with a striper and splicer attachment capable of making a two wall welt of different colors if desired. All the small machines were fitted with the Wildman stop motion and dogless attachment. The exhibit was in charge of F. B. Wildman, president, Owen Ballard, Ernest Tompkins, D. C. Billis, and J. S. Teany.

All knit goods manufacturers and particularly those in the line of hosiery manufacture are always interested in the after treatment of their goods and in the finish which they are able to put on same. Because of this, the exhibit of O. F. ZURN & CO., of Philadelphia, was especially attractive. They had a complete line of cotton and silk softeners and many new specialties for the knit goods trade. They had their well known Glycerine softner for fast black hosiery, and their Turkish softener and also a new 1912 softener which is claimed to be specially adapted for either aniline or sulphur blacks, producing a beautiful black finish. Among their other products which they exhibited was Glico-developer, Magic hosiery oil, Crown scroop finish, Jap-a-no-Silk Oil for silk knitting machines which is a specially fine lubricant because of its non-gumming qualities, stainless hosiery oils, cylinder and engine oils and their new automobile oil, trademarked "Zurnoil." John F. Zurn, the president of the company took personal charge of the exhibit and was assisted by J. L. Wilson, and H. B. McKinley.

The exhibit of the NEW YORK REVOLVING PORTABLE ELEVATOR CO., of Jersey City, N. J., showed one of their hand power machines for loading and unloading cases and bales of finished goods and other materials. This machine is particularly adapted to tiering goods in storehouses and packing in solid where necessary. While only the hand power machines was shown, this company also makes a complete line of pneumatic and electrically driven tiering machines built on exactly the same principal as the Revolvator but which are suitable for handling heavier loads at a high speed. The unique feature of these machines is that after they are loaded and elevated, the machine itself may be turned on its own center and unloaded from either side of the aisle or in the rear if necessary. This was fully demonstrated and explained with the hand power machine which they had on exhibition.

HENRY L. SCOTT & CO., of Providence, R. I., well known manufacturers of testing machinery exhibited in Space No. 69, a very complete line of their machines. These included power yarn testers, power cloth testers, hand yarn and hand cloth testers, twist counters, yarn inspecting machines, roving reels, yarn reels, swifts scales, etc. Their power operated yarn tester is of a very recent type and was shown in operation in Philadelphia, for the first time. This machine together with their power cloth tester and hand cloth tester are patented and made only by them, and have met with remarkable success since being placed upon the market. All these machines being directly connected with the knitting trade, and others who handle textiles, they were naturally the center of a great deal of attention from visiting guests and members.

The exhibit of the A. J. BRADLEY MFG. CO., of 99 Beakman St., New York City, was a very complete one. They had a splendid line of Bradley stencil machinery on exhibit including the Bradley ball stencil pot for using liquid ink for marking and stencilling, oil stencil papers, the Bradley stencil machine which makes stencils in a half a minute at a cost of approximately one tenth of a cent each, and other specialties.

The BERLIN ANILINE WORKS, of New York, had a display of dyed hosiery in all colors, including a line of sulphur black on ladies' and men's hosiery in both plain and mercerized cotton, showing their well known brands, A. W. L., A. W., A., and S. A. G., dye stuffs. They also exhibited a fine line of silk and cotton hosiery dyed with their Zambesi black, as well as an elaborate display of various fancy shades on both silk and cotton hosiery. The exhibit was in charge of Dr. Carl Fischer, of the New York office, who together with E. O. Patz, the New York manager who was also in attendance, and R. Ransford, of the Philadelphia office, assisted in receiving the numerous visitors.

The KAUMAGRAPH CO., of New York, had a splendid exhibit of their well known trade marking process on exhibition showing samples of their work on hosiery, underwear, etc. A new feature of this work was a two color transfer stamp particularly adapted to hosiery. This method of trade marking

Barrett Specification Roofs

On the "Concrete City"

IN the illustration below the Turner Construction Company of New York has brought together in a scale drawing and accurate representation of most of the important modern concrete buildings which they have erected during the past nine years, at an approximate cost of $12,000,000.

It is an imposing display of best types of modern construction—***"a concrete city"*** indeed—scientifically designed for maximum service at minimum cost and minimum maintenance.

It is significant that 95 per cent of the entire roof area is covered with the Barrett Specification type of roofing. The figures are as follows:

Barrett Specification type of Roofs	1,490,523 sq. feet
Plastic Roofings	14,714 sq. feet
Slate Roofings	21,640 sq. feet
Tile Roofings	5,619 sq. feet
Ready Roofings	38,381 sq. feet
Copper Roofings	6,355 sq. feet
All other kinds	7,448 sq. feet

It is important to remember that while all these buildings were constructed by the Turner Construction Company, the specifications were drawn by a large number of architects and engineers.

Barrett Specification Roofs were almost unanimously selected for one reason only, namely that they would give ***better*** service at ***lower cost*** than any other roof covering.

Barrett Specification Roofs require no painting or similar attention—in other words, there are no maintenance costs. They will last upwards of 20 years without any care.

The superior economy of Barrett Specification Roofs justifies their adoption not only on big first-class concrete buildings, but on every flat roofed building from a tenement to a skyscraper—from a small mill to a modern manufacturing plant costing millions. But be sure it's a real Barrett Specification Roof. The only way to be sure is to incorporate The Barrett Specification in full in your plans.

Copy of The Barrett Specification free on request. Address our nearest office.

BARRETT MANUFACTURING CO.

New York, Chicago, Philadelphia, Boston, St. Louis, Cleveland, Pittsburgh, Cincinnati, Kansas City, Minneapolis, New Orleans, Seattle. The PATERSON MFG. CO., Ltd. Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S.

TRADE B MARK

allows the combining of gold, silver and various colors in striking contrast to each other. It was expected that this company would have one of their new hosiery stamping machines on exhibition but were unable to do so. The well known hand stamping process was shown. The exhibit was in charge of Trowbridge Marston.

One very large exhibit at the exhibition was that of the UNIVERSAL WINDING CO., of Boston, Mass. This showed their No. 50 machine producing a small cone of fine yarn which was designed particularly to meet the demand for the largest possible amount of yarn placed in a small package. This demand has been caused largely by the call for reinforced soles on hosiery. The small cones wound on this machine hold twice as much as the cop, thereby doubling the supply and improving the delivery of the yarn. They also had on exhibition one of their No. 90 quilling machines with an attachment which allows the winding of fine yarns on a bottle bobbin which will hold nearly a half a pound of yarn. The exhibit was in charge of F. J. Quinn the Philadelphia agent. F. H. Bishop of Boston was also in attendance.

The exhibit of SCHAUM & UHLINGER, of Philadelphia, Pa., showed one of their latest standard electrically driven hydro-extractors. They have been building these extractors since 1850 with belt and engine drive and in 1895 they added to their line the electrically driven machine. They make extractors in the following sizes; 26, 30, 36, 42, 48, 54, and 60 inch, and can make prompt delivery on receipt of order.

SCHOLLER BROS. CO., of Philadelphia, Pa., showed practically their entire line of soaps, softeners and specialties for dyers, bleachers, and finishers and also many samples of fabrics treated with their products. Among other articles of interest which they had on exhibit was Thio-developer and Brilliantone for after treating sulphur dyed fabrics to secure bloom and luster; special olive silk soap that degums perfectly and rinses out thoroughly and easily and is said not to congeal, even in ice water; "Creamoyl" softener; and "Viscossene" which is a finishing compound that makes cotton goods look like mercerized and mercerized goods like silk. This latter is used in the dye bath and samples of finished materials were shown on which this compound had been used. F. C. Scholler, and H. H. Scholler were in charge of the exhibit.

The BEATTIE MFG. CO., of Cohoes, N. Y., exhibited a full line of Nonpareil loopers. This machine is a two thread stitch looper entirely without cams and springs and is of novel construction. The use of loopers in this country began in about the year 1870, but were very little used except by manufacturers of underwear until the year 1878, when the Ipswich Mills of Ipswich, Mass., desired to experiment with a looper to seam up and close the toes of the hose they were then manufacturing. William Beattie of the Beattie Mfg. Co., was at that time identified with Tubbs & Severson of Cohoes in the manufacture of these machines and was elected to go to Ipswich with the first looper that was started in operation. It was while at Ipswich that Mr. Beattie conceived the idea of revolving the dial counter-clockwise. This type of machine was afterwards furnished throughout the East and this lefthanded looper, as it is called, is still exclusively used among the mills in Eastern Massachusetts and New Hampshire. Since that time a great and growing demand for these loopers has developed and in 1893 Mr. Beattie took his son, Walter J. into the business with him and formed the present Beattie Mfg. Co.

Among the many interesting exhibits was that of the Lehigh Valley Silk Mills of South Bethlehem, Pa., represented by RICHARD A. BLYTHE, INC., 308 Chestnut Street, Philadelphia, who are their selling Agents. This exhibit proved to be most interesting. One of the special features was the reeling of silk from the cocoons. The machine was imported specially from France for the occasion and was operated by Italian girls in native costume. A machine of this kind has never before been shown at any of the exhibitions of the Association, in consequence of which the booth was thronged during all hours of the meeting. In addition to the filature machine they had two of the George D. Mayo New "Model B" revolving cylinder knitting machines on both ladies silk and half hose. The exhibit was in charge of Richard H. Blythe assisted by Lloyd H. Lipps. Mr. Lipps, president of the Lehigh Valley Silk Mills and T. Ashby Blythe were also in attendance.

THE ACME KNITTING MACHINE AND NEEDLE CO., of Franklin, N. H. had several of their machines on exhibition and running. Among these was a 260 needle, 3½ inch, 54 gauge machine making ladies hose with double sole and high spliced heel. A particular feature about this machine is that it represents what is claimed to be the finest gauge latch needle machine ever built and also produces a very superior fabric. Another machine on exhibition was a 220 needle, 3¾ inch, 50 gauge machine making half hose with a double, high spliced heel. This machine was of the revolving cylinder type, with all the latest developments of the Acme Co. Another machine they displayed was a 2 inch, 50 gauge, 124 needle machine, making an infant cuff top sock, which is said to be the smallest size full automatic seamless hosiery knitter built. Artificial silk plating was also shown in process by this company with a 220 needle, 3½ inch, 48 gauge machine, making half hose. The exhibit was in charge of W. F. Duffy, Charles A. Scholl, C. J. Seely, Harry Wright, and A. E. Stewart.

The exhibit of the BARBER COLEMAN CO., of Rockford, Ill., was in charge of L. G. Goodrich, and Allen Clark, from the Boston office of this firm. They were showing the well known Barber knotter in the three sizes made, A, B, and C, which are suitable for a wide range of yarns. This company claims that the use of the Barber knotter will increase production and at the same time improve quality and will handle anything in cotton, silk or worsted from 140s, 2-ply up to 60s 4-ply. This knotter works much more quickly than is possible to tie knots by hand and leaves no long ends to require attention in later processes of the yarn.

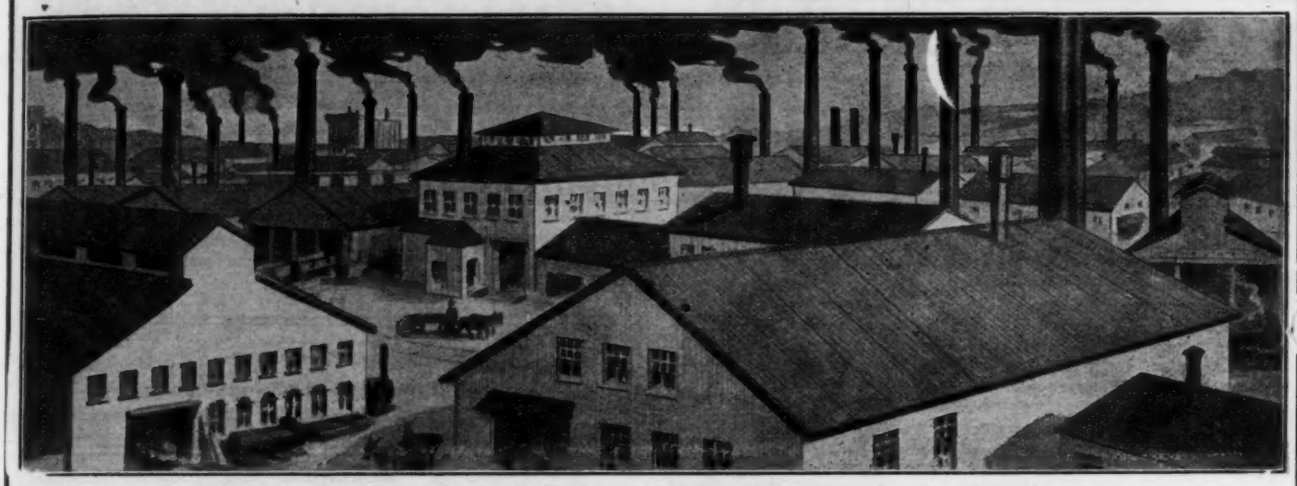
THE J. B. FORD CO., of Wyandotte, Mich., had an unusually fine display of textiles finished with the use of their products. Their concentrated ash for use in kier boiling and their Wyandotte textile soda for bleaching and dyeing, is almost too well known to need illustrations. However, they had on hand a full line of silk and cotton underwear and hosiery, including sulphur dyed hosiery, which is one of their specialties. The deep black produced and the luster imparted to the goods in this sulphur dyed work was very attractive and is what every dyer is striving for. Among the samples of work done by their materials was mercerized cotton yarns, turkish towels, bed spreads, etc. This exhibit was in charge of their popular field manager F. S. Klebart, assisted by A. B. Birch and J. W. Turner.

As time passes on the workers in the electrical field keep adding new lines to their specialties and one of the latest was exhibited in Philadelphia by the GENERAL ELECTRIC CO., of Schenectady, N. Y. This was their electrically heated metal hosiery board. These were first introduced into the United States by this company and they have improved and simplified many of the features of the board as originally produced abroad. These features facilitate the drying process. The boards are also equipped with removable toes making it possible to dry two different size hose on the same board. By the use of this electrically heated board, high pressure steam with its excessive temperature and attendant leakages are obviated and as the boards are reversable and removable at the base, any board may be placed on any base and the toe pointed in any direction, which simplifies the process of drying seamless hosiery. The boards also have a groove running along the edge of the board which assists in placing the seam properly on seamed hosiery in order to secure the best fold. H. J. Collum and W. W. Greble were in charge of the exhibit.

THE GROSSER KNITTING MACHINE CO., of New York as usual had one of the most complete and comprehensive exhibits of the whole exhibition. Max Nydegger was in personal charge of the exhibit and was ably assisted by Robt. Winkler. With these gentlemen to explain the effectiveness of their various machines in producing high grade goods and cutting down manufacturing costs, made this booth a very popular one with the visiting members. Among other features shown was a looper and seamer for seamless and fashioned hosiery, under wear and sweaters, in full operation. Also a new machine which was producing a full fashioned shaker garment in one piece with the pockets knitted in. Many other fancy stitch machines were shown by this enterprising concern.

LOUIS HIRSCH, of New York, the sole representative for the A. R. Greim thread carrier tubes which are manufactured in Germany and also for the Otto Scherf needles which are also manufactured in Germany, had a representative display of the products of these two concerns in his booth. Mr. Hirsch is also sole representative for Viertel's Patented Jacquard Tambour which is an embroidering machine for ladies hose. Mr. Hirsch is also agent for the Sander & Graff knitting machines; the Strauch machine for making fabric for underwear, netting, fancy goods, gloves, laces, etc; and the Liliput crocheting machines. Mr. Hirsch, who was in personal charge of his exhibit, is also American selling agent for the well known Ludwig rib topper, full fashioned hosiery machines, and other well known Ludwig productions.

The JENCKS KNITTING MACHINE CO., of Pawtucket, R. I., had four of their fine gauge Invincible machines on exhibition equipped to knit hosiery with double sole and high spliced heel. Also with reinforced heel and toe, and to change the yarn in the heel and toe, garter tops, etc. Included in this exhibit was a 200 needle, 3½ inch, a 234 needle 3½ inch, a 220 3½ inch, and a 240 needle 3¾ inch machine, all of which embodied the many improvements of detail produced by this



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Some of these imitations look like RU-BER-OID, but that is merely on the surface. The roofing buyer cannot see what is underneath, or he would not be fooled into buying the goods on their appearances only.

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Accent on the "RU" and always spelled with one "B"

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(Colored Ruberoid)
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RED—BROWN—GREEN

The only permanently colored prepared roofing.

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Successors to A. B. Turner & Co. and Philip M. Tucker.

INVESTMENT SECURITIES.

MANUFACTURING CO. SHARES. MILL STOCKS. 24 Milk St., Boston. 111 Broadway, New York.

company in perfecting a machine for the production of high quality fabrics. The particular feature of the 234 needle 3½ inch machine was the elasticity of the fabric, which is such that an exceedingly narrow foot and ankle may be obtained while holding a top of sufficient width and elasticity at the same time. R. J. Morningstar was in charge of the exhibit and was assisted by J. E. Lent of Pawtucket and R. A. Vine, the company's Southern agent.

The LINK BELT CO., of Philadelphia showed their well known Link Belt, silent chain. A working model of this was shown on a motor drive for which it is particularly adapted. It is specially recommended for driving spinning frames where a smooth and positive drive is needed and obtained, it is claimed with fewer broken ends and increased production. The exhibit was in charge of J. R. Zeckwer and M. H. Burkholder.

E. D. Lorimer, H. T. Nekervis, and H. R. Brooke were in charge of the exhibit of W. H. LORIMER'S SONS & CO., of Philadelphia. This extensive exhibit contained a full line of knitting yarns for hosiery and underwear including all grades of combed sea island, combed Egyptian, and mercerized combed peeler on cones, tubes, etc. and in natural and dyed shades of all descriptions. They also had an interesting exhibit of the warp mercerizing process. An attractive feature of this exhibit was a large American flag made of mercerized skein yarns.

The MERROW MACHINE CO., of Hartford, Conn., showed their well known stocking welting machine and toe closing machine in operation. They also had a stocking turner which is a practically new feature and a shell stitch machine which has recently been improved. During the past year this company has been compelled to double its capacity for production and its representatives report that they are now in a position to make prompt deliveries which is something they have been unable to do for sometime past. The exhibit was in charge of E. H. Allen, and P. J. Smith.

The PHILADELPHIA TEXTILE MACHINERY CO., of Philadelphia produced an exhibit that attracted a great deal of attention. It was made still more prominent by a large electric flasher sign with letters in red and green. Their exhibit showed many improvements in drying machinery for underwear and hosiery. They had a Proctor stocking dryer of 250 dozen capacity and also one of 500 dozen capacity on exhibition and also a Proctor automatic looping and drying machine for knit goods in strings, toweling ,etc. One of the stocking dryers was shown driven by a motor direct while the other was belt driven. Their new style pin rail for stocking dryers saves the stocking boards and is so constructed that the pins cannot possibly come out. The exhibit was in charge of F. Kershaw, assisted by W. H. Rihl and J. E. Cooper.

An interesting exhibit of drying, dyeing, singeing, and finishing machinery in operation was shown by the PHILADELPHIA DRYING MACHINERY CO., of Philadelphia. This included a "Hurricane" fire proof dryer built to meet the most exacting requirements of insurance underwriters. This dryer was of steel construction throughout and with air cell asbestos enclosed between two layers of sheet steel for the panels which greatly assists in retaining the heat and securing the greatest economy in drying. The "Hagar" type of automatic singeing machines were shown and also presses of both the hot and cold plate type to work with both hydraulic pressure and power screws. A dyeing machine was shown in operation, adapted to either silk or cotton hosiery and doing excellent work in either sulphur or developed black without any tangling of the goods. The flow of the dye liquor was automatically controlled, as is also an automatic reversing motion which enables one man to attend several machines. These machines are built to handle from 200 to 500 pounds of hosiery at one time. W. W. Sibson, the treasurer of the company, was, together with T. Allsop, the president in charge of the exhibit, assisted by H. Moorshead, and L. R. Garretson.

The ROSSLER & HASSLACHER CHEMICAL CO., of New York, showed an interesting assortment of various classes of textiles, both yarns, and knit goods showing the result of their peroxide bleach. Special attention was called to the advantages and strength, the purity of the white, and the lack of odor which are among the principal claims for this method. G. W. Kuchler, and R. A. Carter of New York were in charge of the exhibit.

MILL NEWS.

Notices of mill projects, additions or improvements are solicited for this department.

ALABAMA.

PRATTVILLE. It is locally reported that the Prattville Cotton Mills will improve their mill by installing about $50,000 worth of up-to-date machinery and also add another warehouse for cotton storage to their plant. This work will probably be begun at an early date and when finished will place this mill among the most up-to-date mills in the country. R. M. Harmon, of Montgomery, is president of the company and is its largest stockholder.

HUNTSVILLE. It is reported that the Merrimack Mills of Huntsville are installing a number of improvements in the way of improved machinery in the Number 1 mill.

GEORGIA.

WEST POINT. It is reported that the Shawmut Mill of the West Point Mfg. Co., of this place will add $100,000 worth of new machinery which will include 5000 spindles and accompanying equipment.

DUBLIN. The Georgia Cotton Mill of this place which was purchased sometime ago by the Eastman Cotton Mills, of Eastman, Ga., are expected to start within the next few months.

LAFAYETTE. It is understood that the LaFayette Cotton Mills will increase their equipment to a considerable extent during the coming year.

ROME. The Chicamauga Mfg. Co., of Rome is investigating a proposition to establish an overall factory at Decatur, Ala.

ROSSVILLE. The Richmond Hosiery Mills of Rossville will install electric power and obtain its current from the East Tennessee Electric Light and Power Co. Lockwood-Green & Co., of Boston, are the engineers in charge.

MASSACHUSETTS.

MARBLEHEAD. The American Cotton Washer Co., a new concern which has recently purchased a building here and is to start a business of reclaiming soiled cotton waste and manufacturing same into salable products.

LOWELL. The permit has been granted for the erection of the $80,000 mill by the Appleton Co., in Jackson Street which was reported as being contemplated sometime ago. The mill will be five stories high with basement and will be 96 feet wide and 210 feet long. It is to be erected on the ground now occupied by the repair shop and two wooden cotton sheds.

MISSISSIPPI.

STONEWALL. The Stonewall Cotton Mills are erecting a finishing room 41 x 128 feet, one story and basement. This room is to contain tentering, calendering and other finishing machinery for colored and other cotton goods manufactured by the mill. They are also erecting a dye house 50 x 236 feet, one story. T. L. Wainwright is president of the Mill.

JACKSON. F. N. Thomas is reported to be contemplating the establishment of a plant at this place for the manufacture of underwear. Mr. Thomas is expecting to market the product of this plant through his own stores and other retail establishments.

NEW HAMPSHIRE.

MANCHESTER. An addition is to be erected to the Stark Mills for the purposes of expanding the bleaching and twisting departments which have been found inadequate to the company's needs.

NEW JERSEY.

CAMDEN. The Camden Knit Goods Co., Inc., has been organized to manufacture ribbed underwear, sweaters, etc.

NEW YORK.

AMSTERDAM. The Chalmers Knitting Co., has purchased land on the south side of the Mohawk River which has a front-

ARE YOU USING "AMERICAN ANILINE COLORS"?

If not, you had better send us an inquiry. It will be of benefit to you. We manufacture a full line of Aniline Colors for Textiles.

SCHOELLKOPF, HARTFORD & HANNA COMPANY, Buffalo, N. Y.

Selling Agents:—NATIONAL ANILINE & CHEMICAL CO.

New York	Boston	Philadelphia	Chicago
Milwaukee	Minneapolis	Cincinnati	Buffalo
Kansas City	Hartford	Providence	

ANTIMONY LACTATE.

¶ As has been widely noted there has been a very sharp advance in the price of Antimony Oxide. Without dilating on the cause of this advance it is of especial importance to users of Antimony products as mordants because they too, will doubtless advance. In the average Antimony product used for mordanting only a comparatively small percentage of the Antimony Oxide it contains is available, the rest is lost, because of the excessive acidity of the bath.

¶ All the Antimony Oxide in ANTIMONY LACTATE is available, hence it is particularly the mordant to use with an advancing Antimony Oxide market.

AVERY CHEMICAL CO., 88 Broad St., BOSTON.

age of about 300 feet and extends back some distance. It is currently reported that the Chalmers Co., is to erect on this land a new plant into which they will later move.

UTICA. The Utica Knitting Co., has purchased a large part of the equipment of the plant of the Lincoln Underwear Co.

ALBANY. The Kinderhook Knitting Co., has been incorporated with a capital of $30,000 to conduct a general knitting business at Kinderhook.

NORTH CAROLINA.

STATESVILLE. The Bradford Knitting Mill Inc., has installed additional machinery among which is 25 double sole and high spliced steel machines and a bleaching plant. They manufacture ladies' and misses high grade combed and mercerized hose. R. E. Clap is secretary and treasurer of the company.

RALEIGH. There is a movement on foot in Raleigh to promote the establishment of a shirt factory. C. R. Towles is promoting the proposition.

MAYODAN. The Mayo Mills are installing in their hydro-electric power plant some new electrical equipment comprising of one 750 K. V. A. water wheel type generator, one 20 K. W. exciter three 250 K. V. A. transformers and switchboard. Throughout the mill they are providing for electric drive by the use of five motors ranging from 30 to 200 H. P.

SALISBURY. The new silk mill erected by Stehli & Co., on East Russell Street is fast nearing completion. Nothing but weaving is to be done in this mill.

WINSTON. The P. H. Hanes Knitting Co., is building a new dye house in connection with their plant. This will give them increased facilities and it is also rumored that the company will in a short time double its spinning capacity.

ROCKINGHAM. It is reported that the Ledbetter Mfg. Co., have let a contract for an addition to their spinning mill. The addition will be built on the opposite side of the creek from the present mill and is to be two stories high and 75 by 150 feet.

CORNELIUS. It is currently reported that a cotton mill is to be built at this place by R. J. Stough.

CHERRYVILLE. The Vivian Cotton Mill of this place are to install a humidifier equipment. It is understood that the contract has already been placed.

MARION. The Marion Mfg. Co., who recently announced that they expected to build an addition to their plant have changed its plans and a larger addition than was proposed will be built. J. E. Sirrine of Greenville, S. C. is in charge and the addition will be a four story mill construction buildng 132 x 150 feet, to contain 25,000 spindles 600 looms and other machinery.

SOUTH CAROLINA.

SPARTANBURG. It is reported that C. Newman, of Spartanburg is considering the establishment of an overall manufactury at Spartanburg.

GREENVILLE. It is reported that the Camperdown Mill will erect a brick addition to the dye house.

WARE SHOALS. The Ware Shoals Mfg. Co., are erecting a new office building at their plant.

GAFFNEY. The Gaffney Mfg. Co., are having the engine and power equipment of their plant thoroughly overhauled.

TENNESSEE.

SPRINGFIELD. The Springfield Woolen Mills have decided on their new additional equipment which will include three 230 spindle mule spinning frames, four broad looms, a 60 inch card, etc.

CHATTANOOGA. Floyd M. Murphey is now the active manager of the Chicamauga Knitting Mills of this place. Mr. Murphey was formerly president and manager of the Gem Knitting Mills of Barnesville.

KNOXVILLE. It is reported that the Brookside Cotton Mills of this city will very shortly contract for an addition to accomodate more than 200 looms. James Maynard is president of the mill, and Justin E. Gale of Boston, is secretary and treasurer.

CHATTANOOGA. The Southern Asceptic Cotton Co., was recently incorporated with $25,000 capital stock and the following officers elected. Robert T. Cameron, president and general manager; R. Meigs Copeland, vice-president; J. Watkins, treasurer and Oswald F. Rothe, superintendent. This company is to manufacture absorbent cotton gauze.

VIRGINIA.

ROANOKE. 3000 new spindles have been added to the equipment of the Twine Mills, Corp., of Roanoke, and in order to balance the equipment, it will be necessary to operate the card room at night.

WISCONSIN.

MERRILL. The Merrill Knitting Co., has been recently incorporated with a capital stock of $15,000 for the manufacture of sweaters, toques, shawls, hosiery, etc.

Yorkshire Gum

A SOLUBLE GUM to be used in Warp Sizing. It is especially valuable as a binder, as it combines readily with any starches and holds the Size well on the yarn. We recommend this Gum especially where drop wires are in use. Besides making a smooth, pliable warp, users of Yorkshire Gum will find the threads split readily, and "break backs" are eliminated. While giving the very best results, it is, at the same time, a most economical Size. It also prevents foaming in the box. Should use Raw Tallow or Soluble Tallow in addition. Write for formula.

ARABOL MANUFACTURING COMPANY

100 William Street, New York

Southern Sales Agent, CAMERON MacRAE, Charlotte, N. C.

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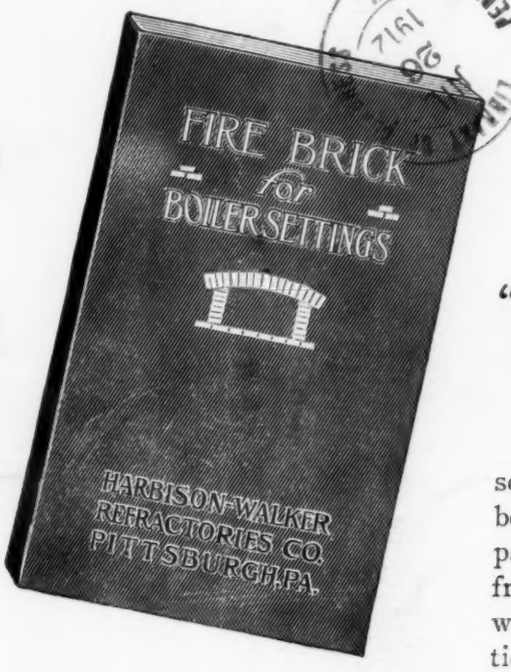

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(*Contributed to* COTTON).

BY FRED W. SIMONS, EX-PRESIDENT NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS.

CHAPTER 3.

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I notice that the worthy Editor of "COTTON" in an editorial note refers to my little effort as "a presentation of the principles of a protective tariff from a new angle." I do not know whether he is correct or not but I am not trying to present the subject from any angle whatever.

In this little discussion of the tariff question I am endeavoring to view the subject from a sufficient distance to permit of bringing the question as a whole within the mental horizon; from such a distance much detail is of necessity lost to sight, but it is only from such a distance that one can see the relative importance of the elements entering into the problem. You can't view a mountain through a microscope; you can't get a mountain under a microscope. If you wish to see the construction of a pebble from a mountain brook or a leaf from the forest on the mountain side you put them under the lens and your microscope will show you much of interest if you take interest in such things; but if you wish to see the conformation of a mountain you should stand off and use the field glass.

It seems to me a crying need of our age that we should take broader, more comprehensive views of public questions; we specialize and scrutenize and analize until we know in detail everything pertaining to an important subject except its relation to other important subjects, and the right way to make use of it. Consequenly we are continually building up with one hand and pulling down with the other.

Any competent physician will acknowledge that correct diagnosis is nine-tenths of his art, and that if he can find out what the trouble is and trace that trouble to its efficient cause his treatment of a case is clearly indicated—is in fact almost a matter of exact science.

So in treatment of ailments of the body politic; if we can get a clear perception of actually existing conditions, locate the disturbing organ, (institution of society) trace its disordered action to the source of its origin, (perhaps in some other organ or institution of society) then, and not till then, are we in a position to prescribe intelligently as political physicians.

Pursuing our inquiry along the broad lines thus indicated and considering all the facts disclosed in their relation to the public welfare, we shall find our various lines of thought converging in the rather startling conclusion that if we could throw nine-tenths of our text books on economics into the bottomless pit and unlearn what we have learned from them, the solution of the problem confronting us today would be greatly accelerated.

It may be urged, perhaps with considerable show of justice, that my acquaintance with the text books in question is not sufficiently intimate to justify so drastic a comment; but we have a right to judge a tree by its fruits, and if the political economists have any adequate knowledge of price analysis, of the chemistry of values shall I say, and of the vital manner in which the composition of prices affects the welfare of the people, then they have not been very successful in teaching it; otherwise the high cost of living would not be a problem, would not exist at all.

We know a very great deal about market values, but we don't know how market values affect the public welfare. We have stock exchanges, produce exchanges, cotton exchanges, ticker service, cablegrams, market letters and daily market reports in every newspaper, but we don't know whether high prices or low prices are best calculated to promote the prosperity of the people as a whole.

As a result of this lack of knowledge respecting the relation of market values to the general welfare, the people of the United States are unable to make up their minds whether to advocate protection as a means of securing high wages, or free trade as a means of securing cheap merchandise.

True, both policies have been quite extensively exploited and we find that under free trade Great Britain prospered enormously, taking first place among the nations of the world not only in regard to the volume of her business and the wealth accumulated by the classes but also in respect to the betterment of the condition of the masses of the people. Yet this progress was halted more than twenty years ago and the struggle for existance in which the masses of the English people are now engaged presents perhaps the most pathetic aspect of modern civilization; and the English people, after worshiping at the shrine of Richard Cobden and John Bright for half a century don't know whether to abandon the free trade policy or not.

The United states on the other hand has tried out the policy of protection almost as faithfully, and has also prospered enormously, but is undecided as to whether or not the same policy that has enabled the people to set up a standard of wages never before approached in any country is also responsible for the maintenance of such a high standard of values for the products of labor as to cancel the advantage of high wages; and being in this predicament the people of the United States don't know whether to abandon the policy of protection or not.

Incidentally, a politicial party has sprung into existance which, while still claiming allegiance to the principles of protection, professes to believe that they have been injudiciously and unfairly applied to the grevious injury of the country's best interests. These gentlemen profess to have discovered a principle or rule of application, the adoption of which, together with certain trade agreements with foreign countries (Reciprocity) to be entered into as opportun-

ity offers, will yield us all the advantages that protection has to offer together with a greatly increased foreign trade,

(Once there was a man who thought the world belonged to him and that he knew how to take it. He died at St. Helena, a prisoner of the world he sought to subjugate.)

Let us consider the question of market values in their relation to the public welfare. First of all let us have a clear idea of what we mean by the public welfare. We are discussing economics, and we mean the material prosperity of the people as a whole, and more particularly of the masses of the people who must earn their livelihood. We mean the degree in which the conditions of national life offer to the willing worker an opportunity to labor and to profit thereby.

The ability and the willingness to work is the principle asset of most men. Their labor is all they have to sell and their prosperity depends upon their ability to sell it at the highest possible price; they sell it at the highest possible price when the wages they receive will purchase for them the largest possible quantity of the products of labor.

Market prices are built up of compensation to those engaged in production and distribution, and if the compensation of all so engaged is ample, the resulting price level will be higher than if all so engaged were not so compensated. Such resulting price level is the minimum that will form a practicable basis of exchange. Unless that minimum price level is maintained the machinery of business is thrown out of alignment and disaster varying in degree with the extent to which such minimum price level is infringed upon ensues. As labor is the chief element in production, the compensation of labor is the principle factor in determining market prices, and any violent reduction in the tariff would place import prices below the cost of production in this country, and destroying the basis of exchange condemn both capital and labor to idleness. This is true of all the occupations excepting those in which our natural advantages are sufficient to counterbalance the higher wages paid in this country, and even they would suffer in sympathy. I repeat, the better labor is compensated the higher will be the price level necessary to constitute a practicable basis of exchange. If this is a fact, a recognition of it will topple the whole free trade philosophy to the ground. I recognise the splendid logic of such men as Smith, Cobden, Bright, and Gladstone, but in order to reach sound conclusions we must reason logically from correct premises.

If we don't get our facts correctly it will avail nothing that we reason logically; if we get our facts correctly but don't reason logically we shall not reach correct conclusions. But if we get our facts correctly and reason logically we shall find truth. It is well nigh a century and a half since Adam Smith and his contemporaries formulated the free trade theory. They did not have and could not have the necessary information to enable them to formulate industrial or commercial policies suitable for our times. The facts which form the environment of economic questions are changed; our present industrial system was scarcely born; the rights of labor were not recognized; indeed labor may be said to have had no rights. It could not combine, could not even hold meetings except in defiance of law. Now labor speaks and a continent trembles; its voice can be heard round the world.

I admit that Cobden, Bright and Gladstone were the friends of labor and that they used the free trade policy effectively in the interests of labor. But circumstances alter cases; conditions have changed, and the people of England are to-day injured by the free trade policy as much as they were formerly benefited by it. This is because of their failure to recognize the fact just referred to, that the emancipation of labor calls for increased compensation, that increased conpensation calls for higher prices for the products of labor, that the higher prices so called for must be maintained by protection, otherwise capital is forced by the circumstances to exploit the cheaper labor markets and throw the better compensated labor out of employment.

These facts are denied by free traders but their denials are sophisticated. Professor King quotes "Labor competes with labor and goods with goods, but labor never competes with goods." I am glad the words are not Professor King's own, for though true in form they are absolutely false in substance. If American made goods have to compete with foreign made goods American labor has to compete with foreign labor. Labor competes with labor in two ways, immediately when seeking employment at a given point, and mediately through the goods, with labor the world over unless protected from it; and the indirect competition of labor with labor is ten times more formidable than the direct competition.

Now, while it is true as stated that prices must be sufficiently high to permit of ample compensation to both capital and labor, such compensation must be earned and the service rendered efficient and useful, otherwise prosperity will still be lacking and we shall be troubled as we are at this date with "the high cost of living."

And right there is the point of contact between the tariff and high cost of living problems. Protection has enabled us, at least in a large measure, to establish our own basis of exchange and we have been enabled to continue at our work without serious interruption, but we have sacrificed much of the benefit we should have derived therefrom by adopting wasteful and extravagant methods.

The high cost of living problem is not nearly so subtle and difficult to analyze as the problem of protection. The facts to be dealt with are more obvious and the principles involved lie nearer the surface. Indeed the solution for the high cost of living problem simply calls for the use of good common sense, the application of sound business principles now in use and well understood by business men, and the recognition of this addition to our code of business morality, namely:—that no methods or policies are admissible, the ultimate effects of which are detrimental to the welfare and prosperity of the people.

As business is now conducted nothing that will promote sales is regarded as wasteful or extravagant provided the cost of doing it can be shipped forward with the goods.

No one seems to have realized whither this immoral business policy would lead us, nor indeed as yet that it has led us into our present economic difficulties. *Yet it has led us into them,* and the strenuous character of the struggle for existance will not be abated except as the fact is realized and the wastefulness of human energy is stopped. Here is a conservation project indeed: from twenty to thirty per cent of the sum total of human energy running to waste—literally spent "for that which is naught." From twenty to thirty per cent of the labor of the civilized world to be diverted from non-productive to productive channels.

If we regard a satisfactory balance sheet as the prime end to be attained and as the consumation of all that business is designed to accomplish, then business is at present conducted with well nigh the maximum of possible efficiency and economy. But if we regard business, as indeed we must eventually regard it, as a service to mankind, as an instrument and a function the principle purpose of which is to contribute to and promote the welfare and happiness of the whole people, then business is conducted with a prodigality of wastefulness never before equalled.

A recognition of the great moral obligation that this view imposes on business men does not necessarily carry with it any sacrifice of compensation either to capital or to business ability; on the contrary existing conditions present to business genius the greatest opportunity it has ever had whether viewed from the money makers' standpoint or the standpoint of true philanthrophy.

There are no good reasons, that is to say there are no insurmountable obstacles to prevent the people of the United States from making more progress in material well being during the next decade than they have ever before made in half a century. All the physical and psychological elements necessary to such progress are present in abundance.

The people are losing twenty or twenty-five per cent of their purchasing power, and have concluded, perhaps not unnaturally under the circumstances that they are being robbed. The conclusion however is both unjust and untrue and is born of our inability to comprehend the significance of great facts and analize their relationship. It is the colossal proportions of the problem rather than its intricacy that confuses us; if we could look at it through a sort of inverted mental telescope so that without changing its character the problem appeared no larger than the economic problems of the average individual business enterprise, then the solution would come naturally to any man of ordinary business ability .

The reader will doubtless agree that the true answers to the most difficult problems are frequently of the simplest possible character. Such is certainly the case with regard to the high cost of living problem; the simple answer being that too many people are engaged in non-productive pursuits, principally mercantile, and too few in productive labor.

A short time ago Secretary of Agriculture Wilson was reported as saying that there were about twenty people engaged in distribution where there ought to be only one. The statement was I believe a casual one made in an after-dinner speech; but while it may be somewhat exaggerated it is nevertheless pregnant with important truth, a recognition of the full import of which is in itself a complete answer to the high cost of living problem. It is the volume of merchandise produced, not the number of times it is turned over in trade that determines the size of the individual's share therein.

You may buy and sell a loaf of bread twenty times but you can only eat it once. (I commend this statement to the notice of those gentlement who think they can see the salvation of the country in promoting foreign commerce.) It is obvious that if seventy-five per cent of the people were engaged in productive occupations the total production would be greater by half than if only fifty per cent of the people were so engaged. Secretary Wilson was substantially correct in his statement. Not one quarter of the labor engaged in mercantile pursuits is necessary to the efficient performance of the task of distribution.

In seeking the solution of any problem it is childish and foolish to ignore fundamentals; but when the problem involves the well being of the whole people it is well nigh criminal to do so. It may not be pleasant to contemplate the fact, but the present situation calls for radical changes in business methods and in the occupation of millions of people. Some one is going to be hurt in the process, but it is no use dodging and squirming and shutting our eyes to the truth.

To me it is a very singular and very regrettable fact that most students of political economy seem to be infatuated and obsessed with the delusion that a great foreign commerce is essential to the prosperity of a nation. It is a belief thoroughly at variance with their own dictum that all wealth is the product of labor, for if all wealth is the product of labor it is obvious that none if it can be the product of exchange.

Whether all wealth is the product of labor or not it is quite certain that all labor is not productive of wealth, and that the nonproducer even though he be engaged in a perfectly legitimate and necessary occupation, must derive his subsistence from the producer. An individual may engage in mercantile persuits and thereby accumulate great wealth, which may be honestly earned, and for which he may have rendered equivalent service in the necessary distribution of merchandise; but he has not added one iota, one particle, to the sumtotal of the world's wealth. A great deal of wealth is acquired in trade but not a single dollar *made* in it.

The high cost of living, the desperate struggle of the people to maintain the standard of living to which they have attained, the strained relations between capital and labor, the growing envy and bitterness with which the masses of the people regard successful business men, result for the most part from our failure to recognise the truth and importance of this fact.

That is a sweeping statement I know, but if you inquire into its truthfulness with an open mind you will find behind it the deadly logic of indisputable facts.

No great industrial enterprise can be successfully carried on unless its various departments are properly balanced. Take a great sewing machine plant or an automobile plant for instance. The labor must be segregated and correctly apportioned both as to skill and numerical strength to the various departments producing the units which when assembled will constitute the perfect machine. If this is not done the result is confusion and failure. There will be overproduction with accumulations of useless stock in some departments and the output of the finished product will be limited by the department of least capacity. Even a tyro in business would predict dire failure to any business so conducted.

The more people there are engaged in productive occupations the greater will be both the sum total of the products of labor and the individuals possible share therein; and measured by the purchasing power of labor, the lower the cost of living will be.

The more people there are engaged in trading and other non-productive occupations the smaller will be both the sum total of the products of labor and the individuals possible share thereof; and measured by the purchasing power of labor the higher the cost of living will be.

Why not recognize as fundamental the in-controvertable fact that no amount of trading can add one particle to the sum total of the commodities which constitute wealth. Trading has a legitimate function to perform in the distribution of the products of labor and is made all the more necessary by our present industrial system, but the beneficial results of trading to the people as a whole are strictly limited to the efficient performance of that function. All trading in excess of that limit is a waste of human energy and if it is profitable to the trader the profits are at the expense of the whole people. Strip trading of its legitimate function and you have gambling.

These facts are fundamental and I submit that the elementary principles of any true theory of economy must take cognizance of them, must be rooted in them, must grow out of them. And yet we find that our political and economic teachers ignore them almost totally.

It is important that the people should have steady employment, but that alone will not ensure their prosperity; it is of vital importance how they are employed. Does that statement sound novel? Abraham Lincoln, whose great affinity for the truth enabled him so frequently to brush aside all irrevelent matter and go straight to the heart of a problem, taught that doctrine ever sixty years ago.

SOUTHERN TEXTILE ASSOCIATION.

"Greensboro, the city of progress." It will be a long time before the members of the Southern Textile Association who had the pleasure of visiting the wonderful little city of Greensboro for their 10th semi-annual convention will forget that slogan. Located practically in the center of North Carolina, 843 feet above sea level, Greensboro's educational and industrial growth has been the most rapid of any city in the state. As the county seat of Guilford county, it is the center of population of 61,000 people. The tax valuation of Guilford county increased $17,000,000 during the past twelve years. This phenominal increase was caused not only by the general industrial development of Greensboro and other neighboring towns in the county, but also due to the building of 130 miles of macadam roads, which was followed by a general upbuilding of farms and manufacturing plants.

Guilford County was the first in the state of North Carolina to adopt a salary system for county officials and also the first to appoint a health officer who was to devote his entire time to co-operating with the schools and other bodies for the prevention and cure of contagious and infectious diseases. In the past year Greensboro has built more than 50 miles of cement sidewalks; has laid 7¼ miles of water mains, making a total of 41½ miles in all; has laid 36½ miles of sewer pipes, making 40 miles in all; and the number of telephones in use in the city has increased 400 per cent. We are giving a few of these statistics in a brief form that the readers may judge for themselves the benefit accruing to any city after its selection as a business center by one or more groups of people interested in textile manufacturing and other industrial progress.

Located on the main line of the Southern Railway, with lines radiating in eight directions; with 38 passenger and 45 freight trains in and out daily; Greensboro is becoming the great distributing point for that section of North Carolina. Two of the largest cotton goods commission houses in the South are located in Greensboro. Cotton brokers claim it a most advantageous point. There are many manufacturing plants in the city that have grown up within the last ten or fifteen years. The inquiring mind will naturally ask why all these developments should have come to Greensboro. The answer is simple. They came largely because of the rapidly increasing development of the outlying sections of the city by the textile manufacturers.

In July 1895, the Proximity Manufacturing Company, was organized and commenced operation in 1896 with 240 looms and 7500 spindles. These were gradually increased until today the original Proximity Mill has 1500 looms and 45,000 spindles.

In 1903 the Proximity Company built the White Oak Mills, with 2,000 looms and 60,000 spindles. Both mills are run on indigo blue denims, of which the great bulk are sold direct to the manufacturers of overalls in all parts of the United States and in many foreign countries. The two mills have a capacity of about 80,000,000 yards of denim annually, and will use about 60,000 bales of cotton per annum. They employ about 3,000 operatives, who with their families live in cottages owned by the Company and located on its property adjacent to the mills. Each cottage occupies a lot 75 x 150 feet and rents at $3.30 to $6.50 a month, including electric lights, this being about one-half the price of similar accommodations in the city of Greensboro. The front yards are used for flower gardens; seeds, bulbs, flowers and shrubs for which are furnished free by the Company, and prizes to the amount of several hundred dollars are offered each year for the best appearing yards. The rear premises are used for truck gardens, many of the people raising their own vegetables.

Power to run both mills is obtained from the Southern Power Company, although the White Oak Mills have a power station of their own which is equipped with four large steam engines and electric generators having a capacity of 10,000 horse power.

The White Oak Mill is known as the largest denim mill in the world. It consists of a number of buildings so arranged that the cotton, which is received from the railroad cars and stored in the cotton warehouses at one end of the plant, moves continuously forward through the picker building, carding and spinning building, dye house, weave building and finishing room, and is again delivered on board the cars in bales of denims at the other end of the plant. The several buildings have a floor space of about 16 acres. The weave building is 904 feet long by 180 feet wide, (nearly four acres in one room) and has a roof consisting of one vast skylight. The cotton warehouses have storage room for 30,000 bales of cotton.

Another large textile plant in the suburbs of Greensboro is the Revolution Mills where they produce daily 50,000 yards of canton flannels and domets in white and solid colors. The Pomona Mills, manufacturers of fine grey cottons are also located at this place.

It was on the joint invitation of President Caesar Cone of the Proximity Company and the city officials of Greensboro, that the Southern Textile Association convention was held at that place. By four o'clock on the afternoon of the 28th the lobby of the Guilford Hotel, which was the

city headquarters of the secretary of the association, began to show the effects of the influx of mill men from different sections of the South.

Saturday morning, June 29th, at 10 o'clock nearly 300 members of the association gathered at the court house to listen to the address of welcome by the Hon. T. J. Murphy, Mayor of Greensboro, who in a few happy words extended to the visitors a welcome to Greensboro, telling them that everything the city could furnish for their pleasure would be furnished. "This great industry of yours" said he "stands at the very front in the industries of the land and the South by reason of the wealth you are bringing here and the work you are doing has no fear of the future."

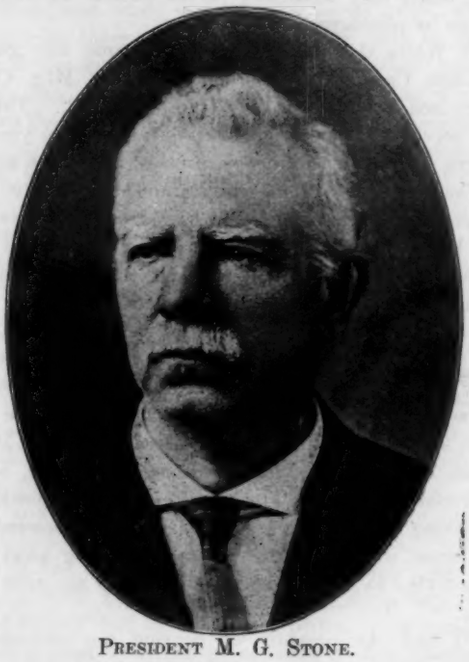
Responding to the words of welcome by the Mayor, Vice-President T. B. Wallace, superintendent of the Dunean Mills, of Greenville, S. C., thanked the mayor in behalf of the association for his warm words of welcome. "We have come from all sections" he said "mixing and mingling here one with another to make for better manufacturing. When I came into the city last night on No. 38 my first impression was that we were entering a city of progress and enterprise, and I find that first impression fully bourne out by a more mature study." President M. G. Stone then delivered his address and said in part:

"I think that we can congratulate ourselves that such a representative number of the members are present at the opening of our annual summer convention. We are more than pleased to be able to meet with our good friends in Greensboro. I feel sure that our meeting here will be so pleasant that we shall have occasion many times to say, we were indeed fortunate in having met here. And also in the days to come we can say of the meeting held at Greensboro in 1912 that it was one of the best we ever had.

"This coming together and making new acquaintances and re-newing old ones is, I believe, one of the best features of the association meetings. We ought to feel that we have a common interest in each other as cotton mill workers. Let us try to cultivate this friendly feeling and while we may be competitors in a measure we will for the few hours that we are together feel perfectly at home with each other. Also let us try to get all the good we can out of the meeting, both in giving and receiving information about our work and the inspiration we shall get from the mingling with men of similar aims and purposes.

"At our meeting held at Atlanta in December last I tried to say a few words about our opportunities in the business we are engaged in. My object was to say something that might encourage some of those who had neglected to take advantage of their good opportunities or who felt that they had forever lost all opportunity and who would make no further effort to better their condition. I have always thought it a mistake for men to feel that opportunity would never come again. I believe that opportunity will come to us more than once and believing that, we should work all the harder to make up for the lost time and neglected chances. In other words there is no such thing as failure, but that it is possible for a man who feels down and out to regain again what he has lost, or as it is sometimes so well expressed and often demonstrated he can "come back again." Yes men can and do "come back" and I am sure that every one of us will say that we are glad it is so. Now I only refer to this to arouse the men who meet with set backs to renewed exertion to try to regain what has been lost.

"I have tried to think of some subject or some word or idea, that would most properly apply to, or fittingly describe some of our hardest workers and most industrious men who are filling the positions of overseers and superintendents. For it is a well known fact that there are a great many of them who are never satisfied with what they are doing, but who are always trying to do a little more work and a little better work. I have found it rather difficult to get the idea expressed in a single word but it seems to me that we can with propriety use the word "efficiency." Efficiency in this case I would define as completeness or thoroughness, or carefulness in looking after little things and details in connection with our work. Now the application of the word efficient in connection with the management of machinery, as we understand it, is this, are we



PRESIDENT M. G. STONE.

getting the greatest quanity of work or production? Are we getting the best quality of work from the machinery under our care? Are we taking the best care of the machinery that is possible for us to do consistent with the conditions. If we are doing all of these things we may hope to say, or have someone say of us there is a very competent and efficient man and he is just the one we have been looking for. The moral is, "be efficient" and you will get your reward.

"As an example of what is considered to be a case of very high efficiency, let me give you an instance, it was told me as a fact, or at least the man told it as a fact, that in certain mills spinning frames were doffed in 45 seconds. He said, "it was not only one frame but it was done continuously." Think of that you wide awake spinners, 45 seconds for doffing a frame. I will not vouch for it, only that it was told me by one that I had always considered reliable. May be he belongs to the Annanias Club now. I will say, however, that the mills referred to were not in North or South Carolina, or in Georgia.

"I am not prepared to say whether efficiency of that kind pays or not. It seems to me that it contains an element that will admit of some difference of opinion and

consequent discussion; there are I know, many things done about the mill that will admit of greater efficiency, that will pay and pay well and I commend the subject of more and greater efficiency to the careful thought and consideration of our members."

At the close of the president's address, a few announcements were made by the secretary in regard to the entertainment features of the convention and then the association adjourned and went to the street in a body where special trolley cars were waiting to take them to the White Oak Mills of the Proximity Mfg. Co. At White Oak they were met by the White Oak Band and the different mill officials who escorted the entire body through the White Oak Mills, which as above stated, are the largest denim mills in the world. After visiting the mills the members visited the new White Oak department store and market, after which they assembled in the shadow of White Oak Hall to be photographed.

At White Oak the association became the guests of President Caesar Cone of the Proximity Mfg. Co., who entertained at luncheon in White Oak Hall. The guests were served by an efficient corps of handsome young lady waiters, attired in white caps, dresses, and shoes and wearing the red badge of the entertainment committee. After the cigars had been lighted, President Stone announced that President Cone of the Proximity Co., would address the association on the "Relation of the Mill Management to the Superintendents and Overseers."

"In reference to the program, and particularly to the title of my address, as mentioned by your President, I don't know why that subject was given to me, unless possibly it was selected for the same reason that speakers are so often given subjects that they know least about," said Mr. Cone. "I am afraid in this instance that is the case, because I don't claim to know a great deal about that question, so, if in making my remarks I get away from it occasionally you gentlemen will know that I am wandering away because I am trying to get on some ground that I am more familiar with.

"I had the pleasure of hearing the address of our mayor this morning, and he spoke on a subject which is very near my heart, and I believe it is very near the hearts of every one of those present, and that is the question of development. Pardon me for getting away from my subject, that of the relation of managers to superintendents. We will get to that after while, I hope, if I don't consume all the time allotted me before I get to it.

"In speaking of the development of the South, especially in cotton goods, I cannot resist the temptation of taking advantage of this opportunity, which I may not have again in a life-time, of addressing what might be called the *"creme de la creme"* of the cotton mill manufacturing interests of the South,—that is, the "men behind the guns," and to tell them something about a development that occurred some twenty-one years ago in the Southern cotton mill industry, especially the colored goods end of it. I think I am in a position to know as much about this particular development as any man living today. I am not as familiar with the grey goods, or plain white goods, as I am with the colored, but I do know that about twenty-one years ago, when my brother Moses H. Cone, now deceased, departed from the wholesale grocery business, in which he and I were raised up, and went into the cotton business he took a step which put the Southern colored goods business ahead, twenty years, in the space of five years.

"He formed what was known at that time as the "plaid trust." At that time, there was not a fabric made of colored yarn, barring an isolated instance here and there of a mill which made colored goods of yarns finer than 14s. Anything made of finer yarn than 14's in the South was practically unknown. To my knowledge there was not a fabric made in the South worth mentioning or a colored fabric that had any finish to it. There was hardly a mill that used as simple a process as a calendar. Just think of it, only twenty years ago, goods that were made in North Carolina were shipped to Philadelphia to be simply calendared, and folded up and put into cases or bales and returned to the South.

"Such a thing as manufacturing a piece of napped goods in the South was unheard of. I don't believe, gentlemen, there was a napper in the South at that time,—not one. I think the first piece of napped goods made in the South was made at our request, or instruction, but the

SOUTHERN TEXTILE ASSOCIATION AT THEIR 10TH SEMI-ANNUAL CONVENTION, WHITE OAK HALL, GREENSBORO, N. C.

goods were shipped to Philadelphia to go through as simple a process as napping. Though my brother was only a grocery merchant, it did not take him long to see that instead of sending the goods North to be calendered or napped, or to go through simple processes like that they should be finished here. He tried to get some of the mills to put in that kind of machinery. They wouldn't do it, so he established the Southern Finishing and Warehouse Co., which concern was afterwards sold out to the Coulter & Lowry Co. Later the mills finding they could not compete unless they had their own finishing plants, caused that business to wind up its affairs, and it is now idle, but I feel that it is due to the memory of one who is very dear to me to mention to you gentlemen something that a great many of you don't know—that he was responsible for pushing the colored cotton goods forward in the South 20 years, in a period of five years. Of course it was bound to come anyway, but it always devolves on some one man to push such thing along. Naturally, we have more "pushers" now than we had in those days, with the South consuming two and a half million bales of cotton as against probably two hundred to two hundred and fifty thousand bales at that time. It is like the boy learning to ride a bicycle—it is hard to get him started, but when he gets started, he doesn't know when to stop.

"The success or the failure of a mill is largely, in fact almost entirely, due to the energy and intelligence of the superintendent, and his assistants. When you have competent superintendents with proper assistants, backed by proper cooperation, there is bound to be success in that enterprise. It doesn't make any difference whether it is a cotton mill or a saw mill, or any other industry. You have to have cooperation in every department, starting at the fountain head.

"Take a great many enterprises, and go through them carefully, and you will find that they make a fair success. They close each year's business showing fair results, and show that they have made some money, but if you will analyze those concerns carefully you may find that they would have made a great deal more money if they had had a little more cooperation, or had what we call the "weak spots" eliminated. There are very few enterprises in this country, cotton mills or any other kind of business, that do not have their weak spots. The thing to do is to get rid of them. Of course in some mills the superintendent has more duties than he has in other mills, depending upon the size of the mill. In some instances you will find a mill where the superintendent is supposed to look after the buying, manufacturing and selling. All that is on his shoulders. That is certainly a varied line of work. In this day and time the majority of mills are fairly large, and the work is sub-divided, and the superintendent does not have the responsibility of what is known as the office work, and his functions are strictly within the mill.

"It is very necessary for the president, or treasurer, or whoever manages the mill, to have a superintendent that he is in thorough harmony with. The relation between them should be entirely cordial. They should understand each other, and when one happens to be away, which is necessary at times, the other should be able to take his place, if necessary, unless he has some other person as "second man" to take the place. I believe that you might compare the relations between them as between members of a family. This is as it should be, and not, as in some instances, where you find one fellow carrying a "chip on his shoulder" against the other fellow. Wherever you find that state of affairs you will not find much success. In this southern country we are exceedingly fortunate in being very much closer together than they are in some other sections. The owners of the mills here, come in closer personal touch with the superintendent, their assistants and in fact all the employees in the mill ,than they do in other sections. A great many of them were raised together, school-mates, and that has a great deal to do with the harmonius condition that exists in this part of the country, and which tends towards success.

"Of course, for the last few years we have not had, in the cotton mill business, what you might call "success." In fact it has looked until this year as though we would have to scratch that word out of the dictionary, but I am glad to say that we are doing better. The outlook to me is very good now, but going back to this question of relations, it is very unusual to find a superintendent who treats those under him other than just exactly as he would

WHITE OAK BAND TO EXTREME RIGHT.

like to be treated, if he were in their places. Nearly all our superintendents rose from the ranks, and most of them have pretty good memories, and they treat the boys right. They give them a square deal, as a rule, which means pleasant relations between the superintendent and the men under him. You will always find where the superintendent gets along smoothly and pleasantly with those under him, that he does not need any recommendation to the head of the concern, or president or treasurer, or whoever has charge of promotions. They see those things, and they shove those men right along, and favor them in every way that they are entitled to be favored. It is a very unfortunate thing that now and then you find men in an executive capacity who do not realize and remember how it was that they got there. They sometimes forget.

"The positions that you gentlemen occupy, I believe, offer you the greatest opportunity of any work in the mill business, for making improvements, for making new discoveries of various kinds, and it is up to you gentlemen to take advantage of your opportunity. They say that opportunity will knock at almost every man's door once in his life, maybe oftener, and it is up to you to take advantage of it when opportunity knocks at your door. It is a very common thing to have men moralize or speak about some fellow, how successful he has been, and how high he has gotten, what a big salary he is making, and wind up by saying they know they are smarter than he is, "and I am only making $2.50 per day, and that fellow has a fine job." The successful fellow was there when opportunity knocked at his door, and maybe the other fellow was sitting around playing "cinch," or not at home when opportunity knocked.

"It is very important for every man in an establishment, especially a manufacturing establishment, to know just what his duty is, and see that he fulfills it. Of course he can very often see where the department ahead of his or behind his is lax in its methods, and sometimes causes trouble, expense and loss, and it is his duty, instead of making a complaint to the man above him, to try to remedy that, without causing any friction, because you know, gentlemen, the world is full of "knockers." You don't have to hunt far to find them. We all want to avoid the reputation of being a "knocker." If the man ahead or the man behind, or the man who is working in any department of the mill sees that the links that connect the various departments are kept well oiled and run smoothly, he won't have to wait very long for success to knock at his door. It will come along and get there after while. Now and then you find some fellow who is just watching for a chance, either in the department ahead or behind, to give the other fellow a knock. It is not going to be very long before he gets knocked himself.

"Of course it is very important that you impress on every man in every department the absolute importance of maintaining a high standard, and it is the easiest thing in the world for a fellow to find a good excuse as to why his work is not running well—because the fellow just ahead of him had not done his duty. We want to get away from that. We want him to help that fellow do what is right. I think I said before that you want to treat every man just as you would like to have him treat you. It would be an ideal condition if every man who has an important matter to pass on, would pass on it just exactly the same as if the whole "shebang" belonged to him, and if they would do that, it would help smooth out some of these kinks we are talking about.

Before I conclude my remarks, there is one subject that I have had brought before me in several different ways, and it is a subject that is right close to a good many of you. It is a matter that I think you should all give a good deal of consideration to, and that is the question or getting rid of what we call "docks." I think that is a bad word. I think we ought to cut it out of the dictionary. I think if we could eliminate "docking," it would be a great help to us. I believe if you folks that know more about those things than I do would devise some scheme whereby, instead of docking your hands for bad work, you could handle it in some other way, you would find it to be a great improvement. I only recently heard of a decision in a Court. I think it was in Massachusetts, where the docking system was sustained and pronounced legal. We here in the South are leading those folks up there in so many things, that I believe we ought to try to help them in that. Let's see if we can't eliminate "docking."

"We all know that the machinery we are buying has reached a very high state of efficiency, and the managers and superintendents of the mills, and especially the new ones, where they have just received some of the latest patterns of machinery, are very proud to tell you how well it is running, and what good production they are getting. There is no doubt but that good machinery, kept up to a high state of efficiency, will give good production. Along this line, I heard a new word some time ago in an address on the subject of "Eugenics." I never had heard the word before. Eugenics is the efficiency of man, or man-efficiency. Your machinery has reached a very high state of efficiency, and while a great many of you are now or in the recent past have supplied your machinery with help from the mountains, or sections of country where people needed work, and who of course are not as efficient as people who have been working a long time, you can take the most inexperienced help that you have and by a little careful training, patience and kindness, they can be brought up to a higher state of efficiency. That is a benefit to everybody. It benefits the superintendent of the department, and the superintendent of the mill, and the owners of the mill. It benefits the entire institution, and it is a question that doubtless all of you have studied, but I believe you have much to expect in that direction, that will increase the quantity of your output, as well as improving the quality.

"I have frequently seen what they call "samples" that you could look through carefully, and you would not find a blemish. They would be almost perfect. As a matter of fact, there is no such word as "perfect." All cotton goods we divide into two classes, firsts and seconds, and anything below that has to be sold as imperfect goods. If you will train your help all the way down the line to a high state of efficiency you will find that you will soon be able to eliminate a very large percentage of your seconds, and thus get rid of that offensive word "dock." It all takes time and patience and intelligence.

"Before concluding, I want to again tell you how very highly we appreciate your accepting our invitation to come out here and break bread with us. As I said a while ago, it is an opportunity that we don't have very often, and when the time comes around that you gentlemen feel like you want to turn your eyes in the direction of Greensboro to hold another meeting, don't wait for an invitation from

those of us who are in a position to extend it, but just consider that you have a standing invitation. We are glad to have you. My associate officers and superintendents and managers, I know are all glad to have you with us today, and all I ask is that you do not take them all away with you, because we want to start up again Monday morning."

At the conclusion of Mr. Cone's address the association gave a unanimous rising vote of thanks to Mr. Cone and elected him an honorary member of the association for life.

To respond to Mr. Cone's address and express the appreciation of the association, the president Mr. Stone called upon A. B. Carter, of Athens, Ga., who said in behalf of the association that he would express the appreciation of everyone.

Leaving the hall for a few moments for the tables to be cleared away the association again convened at 2:30 p. m., when F. L. Page, manager of the mill supply department of the Odell Hardware Co., of Greensboro, who was the chairman of the entertainment committee, announced that after the business meeting was over special cars would be in waiting to carry the members around the city of Greensboro. He invited them while en route to visit the store of the Odell Hardware Co., and examine the great amount of mill supplies carried on hand for their convenience and use. He also announced that the evening would be devoted to a smoker at the Elk's Club in Greensboro under the auspices of the Chamber of Commerce, and that all members of the association were urged to wait over until a late train and enjoy the hospitality of the committee.

President Stone then called for nominations for president which were made and a paper ballot taken. While this ballot was being counted, T. M. McEntire, superintendent of the Loray Mill, Gastonia read his paper on "Economy in Operating a Spinning Room." This and the other papers presented before the association will be found under the head of Cotton Manufacturing in this issue of COTTON. At the conclusion of the discussion the returns of the ballot were read and it was found that T. M. McEntire had been unanimously elected president of the association.

After the announcement of the vote President Stone called for nominations for vice-presidents. A resolution was passed thanking the pleasing and gifted young ladies who so graciously served the bountiful lunch provided by Mr. Cone. Another resolution also thanked the members of the entertainment committee and others who had assisted so much in the entertainment of the members during the convention.

Because of illness in the family of W. S. Dean his paper on "Carding" was read by Mr. Simpson, of Charlotte, editor of the Textile Manufacturer. Following this paper the returns of Democratic convention at Baltimore were read from the stage. Nominations were made for the chairman for the board of governors and also for four members for the board.

Bernard Cone, treasurer of the Proximity Mfg. Co., then addressed the convention on "Some Phases of Welfare Work." Mr. Cone's excellent paper will be found in another part of this issue.

"Fine and Fancy Weaving," by W. A. Black, former superintendent of the Capital City Mills, Columbia, S. C. was another interesting paper presented at this meeting. The new officers elected were as follows:

President, T. M. McEntire, Supt. of the Loray Mills, Gastonia, N. C.

First Vice-President, Z. H. Mangum, Supt. of the Mineola Mill, Gibsonville, N. C.

Second Vice-President, T. B. Wallace, Supt. Dunean Mills, Greenville, S. C.

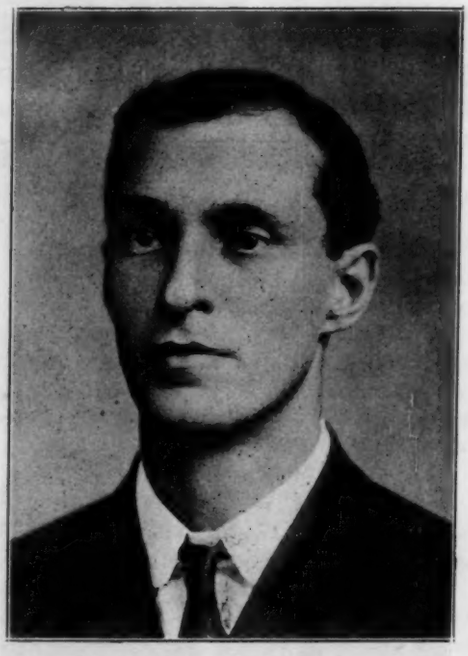
Third Vice-President, J. H. Quinlan, Supt. Cedartown Cotton and Export Co., Cedartown, Ga.

Fourth Vice-President, I. B. Covington, Supt. Mt. Holly and Albion Mills, Mt. Holly, N. C.

Secretary, G. S. Escott, Charlotte, N. C.

Treasurer, David Clark, Charlotte, N. C.

Mr. Hardeman, of Newberry, S. C., was elected chairman of the Board of Governors. Four other members of the board of governors were elected as follows: J. A. Bangle, A. H. Cunningham, A. B. Carter, and T. H. Webb. The program committee was continued with only one change in its membership. A. E. Escott, editor of the Mill News, replaces his father G. S. Escott.



T. M. MCENTIRE, THE NEW PRESIDENT

Communications were read from members and city officials of Chattanooga, Tenn., and it was voted to hold the next meeting of the association at Chattanooga on Saturday November 30th. Superintendent T. E. Gardner of the Proximity Company addressed a few words to the association and then Secretary Escott read his report. A noticeable feature of this report was the fact that at the opening of this meeting the association had 763 members and during the meeting had added about 100, making it in the neighborhood of 860. Treasurer Clark then read his report.

A special committee was appointed to advise changes in the by-laws and report at the next regular meeting. This committee was as follows, J. M. Davis, Chairman, J. H. Cunningham, and T. I. Barber. The meeting then adjourned, and the many members who remained over for the evening smoker after the car ride, reported a most enjoyable time.

Georgia Cotton Manufacturers' Association.

The twelfth annual convention of the Georgia Industrial association opened its session at Warm Springs, Ga., on Tuesday morning June 11th, with a strongly representative body of Georgia cotton manufacturers present. Over forty mills were represented and a large amount of interest shown in the proceedings.

Promptly at 10:30 a. m. the first session was called to order by Vice-President Fuller E. Callaway, who has acted president of the association since the death of its late president, Charles D. Tuller, of Atlanta. Rev. I. S. McElroy, of Columbus, offered the invocation, after which the roll call was read by the secretary. The reading of the minutes of the previous meeting was dispensed with and the president appointed the members of the resolutions, auditing and nominations committees.

PRESIDENT F. B. GORDON.

Since the vacancy caused by the death of the late president was to be filled at this meeting, capable men for the position had been considered by the members for some time past. It had been practically decided upon in advance of the meeting to again nominate F. B. Gordon, president of the Columbus Manufacturing Company, of Columbus, Ga., to the position, provided he could be induced once more to accept the executive chair. Mr. Gordon had already been president of the association for four years prior to this time, and had expressed his intention of declining to serve again in that capacity, but when it became evident that it was the unanimous wish of the members he acceded to their desires for a term of one year with the proviso that he should receive the active support of the membership.

While the nominating committee was preparing their ticket, a resolution was passed changing the name of the association from the Georgia Industrial association to the Cotton Manufacturers' association of Georgia, this latter being a much more representative name. The by-laws of the association were also amended to provide for the election of eight vice-presidents to be located in different sections of the state and increasing the number of members of the executive committee from five to twelve; eight of whom should be the vice-presidents. It was also voted to amend the by-laws and so arrange that the executive committee should meet quarterly in different mill centers of the state instead of at the call of the president as heretofore and that all members of the association in the vicinity of the meetings should be invited to attend.

The committee on nominations then reported and the following officers were elected:

President, F. B. Gordon, of Columbus.

Vice-presidents: C. V. Truit, LaGrange; Allen F. Johnson, Atlanta; Allen Little, Griffin; W. P. Bryan, Athens; T. S. Raworth, Augusta; James H. Porter, Macon; W. J. Vereen, Moultrie; Frank T. Hardwick, Dalton.

The four members at large for the executive committee, exclusive of the vice-presidents, were: H. P. Meikleham, Lindale; J. L. Hand, Pelham; J. A. Mandeville, Carrollton, and E. W. Swift, Columbus.

The legislative committee named was: S. A. Carter, Atlanta; F. E. Callaway, LaGrange; Booker Scott, Atlanta; P. B. Murphey, Newnan, and George W. Hamilton, Dalton.

The resignation of Hal L. Johnston, who has served as secretary and treasurer for the association during the past three years, necessitated the election of a suitable man for this position.

Harry L. Williams, president of the Swift Manufacturing Company, of Columbus, was the happy choice of the nominating committee for this responsible position and who also kindly consented to serve. It was then moved that a suitable compensation be paid Mr. Williams for his services, the amount to be determined by the executive committee.

President Gordon then introduced Prof. R. J. H. DeLoach, of the department of cotton industry of the University of Georgia, at Athens, who read a thoroughly interesting paper on the "History of Cotton Classification," which was greatly enjoyed by the members. As requested by President Gordon in behalf of the association, COTTON reproduces this paper in full in the present issue.

The afternoon session opened with a report of the executive committee, read by H. P. Miekleham, chairman of the committee. Mr. Miekleham urged more co-operation on the part of the members connected with the traffic bureau of the association, and after an extended discussion by the members a resolution was passed making it obligatory for all members to use this bureau, subject to certain limitations and at a specified cost.

The next address was entitled "What Is Electricity?" by John S. Bleecker, general manager of the Columbus Power Company, Columbus, Ga. Lack of space prevents its reproduction in this issue, but it will appear in full later.

Retiring Secretary Johnston then read his report, which was accepted. The special committees reported, and after some general discussion it was moved to adjourn until the next regular meeting.

In every way the meeting was an unqualified success and

the future of the association now seems brighter than at any time in its existence. Among the mills who had one or more representatives at the convention were the following: Atlanta Hosiery Mill; Aragon Mills; Bibb Mfg. Co.; Canton Cotton Mills; Columbus Mfg. Co.; Crown Cotton Mills; Climax Hosiery Mills; Elm City Cotton Mills; Eagle & Pheonix Mills; Exposition Cotton Mills; Elk Cotton Mills; Floyd Cotton Mills; Georgia Cordage Mill; Gainesville Cotton Mills; Georgia Mfg. Co.; Grantville Hosiery Mills; Gate City Cotton Mills; Henderson Mfg. Co.; Hampton Cotton Mills; Lang Mfg. Co.; Lanett Cotton Mills; Lanett Bleachery & Dye Works; Lawrenceville Mfg. Co.; Milstead Mfg. Co.; McIntosh Mills; Mandeville Cotton Mills; Muskogee Mfg. Co.; Massachusetts Mills in Georgia; Manchester Mills; Newnan Cotton Mills; Pacolet Mfg. Co.; Palmetto Cotton Mills; Swift Spinning Mills; Summerville Cotton Mills; Scottdale Mills; Swift Mfg. Co.; Thomaston Cotton Mills; Tallapoosa Mills; Union Mfg. Co.; Unity Cotton Mills; Union Cotton Mills; and Warhoo Mfg. Co.

"SYNDICALISM."

In America the specter of Syndicalism first appeared in the Lawrence strike. The American Syndicalists, the Industrial Workers of the World, who directed the strike in Lawrence, have been attracting more and more attention since and have been trying to make Syndicalism a factor in American life. American Syndicalism should not be regarded as an importation from France. Of course, American Syndicalists have been more or less in contact with French Syndicalists, but the movement has grown up on American soil and can be traced back to the Knights of Labor. The latter had already formed a vague idea of industrial organization which is so actively propagated by the Industrial Workers of the World. Craft Unionism, however, carried the day in America after 1886, and achieved marked success in the development of the American Federation of Labor. The idea of Industrial Unionism, nevertheless, never died out, and in recent years has been gaining ground under the influence of favorable economic conditions. Finding support among Socialist working-men, the idea of Industrial Unionism was combined with the Socialist conception, and a theory resembling French Syndicalism in the most essential points was the result. This theory was made the basis of the programme adopted by the I. W. W. in 1905.

The Industrial Workers of the World differ, however, from the French Syndicalists in their attitude toward the General Strike. The former conceive the Social Revolution not as a stoppage from work, but as a "staying at work." According to this idea the working-men will one day declare the means of production common property, but, instead of leaving the factories, will stay there to continue production on a Socialist basis.

Syndicalism is primarily a working class movement having for its end the solution of the labor problem. But its plans are so far-reaching and involve such profound social changes that society as a whole is necessarily affected. What has, then, Syndicalism to offer to those classes of society which are not occupied in manual labor?—Louis Levine, in the July number of *The North American Review*.

If you would know the value of money go and try to borrow some.

A HISTORY OF COTTON CLASSIFICATION.

BY R. J. H. DELOACH, PROFESSOR OF COTTON INDUSTRY AT THE UNIVERSITY OF GEORGIA.

A few years ago I was in the vicinity of several cotton mills at which time the price of cotton went up and a great panic came on. Many of the mills were forced to cut short their time and some of them shut down for a time. I became much interested in the economic situation and began a systematic study of the cause of the trouble, especially since one mill in the community cut very little time and never shut down at all. In talking with the superintendent of that mill, I learned that the waste in a mill may determine how long it can run under adverse circumstances, and that the care with which a superintendent places cotton in a mill, may, in a large measure, determine the net profits of the mill to the stock holders.

The classification of cotton does not consist merely in naming the grades, and the one who thinks thus will always have trouble under any kind of unfavorable circumstances. In the mills, the great thing is to know of two even running lots of middling cotton, which is best suited to go into warp and which best suited to the weft, and unless this be taken into account, the best results cannot be obtained. This will depend on the nature and kind of waste, the length and strength of fibre, and the uniformity of the fibre. The above mentioned mill kept running in the face of a panic while others had shut down, because the superintendent had taken into consideration, the question of placing cotton in the mill to the best advantage, as well as because he kept perfect organization among the employees in the mill.

Turning back the pages of history a few hundred years and looking into the development of the subject of classification, we shall get some idea of why cotton is classified and how the art grew.

In Rees old Cyclopedia published in 1824, under the heading "cotton," we find an exceedingly interesting account of some early crude efforts at classification, but of such nature to suggest to us that it was a problem, not fully realized at that date. After telling of the different places from which cotton was being brought into England, the writer tells us:

"The cotton from these different countries varies considerable in color, length, fineness, and strength of fibre. It is the product of several species and varieties of the gossypium, and we may admit that differences of climate has considerable influence on the texture and quality of the cotton."

"Cotton is distinguished in commerce by its color, the length of its fibre, and its strength and fineness. White is in general considered as characteristic of secondary quality. The cotton of Smyrna, Cyprus, Salonica; and all parts of the Levant is distinguished by its want of color. The chief part of that from North America is also white, viz., New Orleans, Tennessee, and Upland Georgia. Yellow, when not the effect of accidental wetting, or inclement season, is indicative of greater fineness. The cotton of the West Indies and of South America is called yellow, but the color inclines more to cream color. That from India has a slight tinge of aurora. The fine Sea Island Georgia, though not properly a yellow cotton, has a faint but decided tinge, which distinguishes it from the white cotton of the same country."

After this discussion the authority gives a complete definition of every kind of cotton then in commerce, and always has something to say about the color, fineness and strength of the fibre. This custom was the outgrowth of a demand for good fibre out of which to make the best cloths, while for a long time there was no name by which

cottons were bought and sold other than the names of the country from which they came, yet these signified a great deal to the makers of cloth, in those days. England began to trade in raw cotton as early as 1430, and in the early days the islands and shores of the Mediterranean furnished the supplies. Cotton was planted in America when the colonies were planted, but assumed no importance as an article of trade till after Whitney invented the saw gin in 1793. Before then it was planted by the colonies for home consumption, or to make into "homespun" goods. After the invention of the saw gin, Great Britain's cotton trade was transferred from the East in a great measure to the American southern states, and has since gotten most of her supply from us.

When this trade between England and America first began, there was no classification basis for the cotton trade, but on the contrary as Ellison says: "In the infancy of the trade, when the arrivals into Liverpool were only trifling and intermittent, the cotton imported was for the most part, sold to dealers, who retailed it to spinners in Manchester, Blackburn, Bolton, and other centers. Sometimes it was sold direct to the dealers by private treaty; and at other times by auction, either by importers themselves or by brokers in their employment." This form of trade no doubt was practiced almost up to the beginning of the eighteenth century, when it was sold by drawn samples which could be examined by the public before purchase. In fact no doubt much of the cotton spoken of by Ellison was sold by sample. We do not have a record giving any grade names to these samples prior to the beginning of the eighteenth century. We have many announcements brought down to the present in an old pamphlet "Williams' Advertiser," which are interesting, but in none of these have we any names for different qualities of cotton.

As the demand grew larger and larger for increasing amounts of cotton, it became evident that some form of naming the cotton must be introduced in order to facilitate the trade. Purchasers had to arrange for enough cotton to keep their mills busy for a season, and hence while they could not see samples far in advance, they might know under certain names about what kind of cotton they were to expect. The most natural names to develop under these conditions were such names as, 'Fine,' 'Inferior,' 'Good,' 'Fair,' 'Middling," 'Ordinary,' 'Fancy', etc., etc., such names as were already in use in connection with other articles of trade in Germany and England. This information I get from a German correspondent who says that these terms were used for cotton and other crops as long as commerce has existed. In an effort to get at some conclusion as to when these terms were first used on the markets as trade names, I circulated a letter to all parts of the world, but was in a great measure disappointed at the results.

The first time I find the appearance of the word 'middling' applied to cotton as a trade name is in the year 1801, in a Liverpool cotton broker's circular, which is as follows:

Year.	Middling Up.	Fair Surat.
1801	18d	16d
1802	16"	14"

Prior to that time all records show that cotton was quoted not by grade names, but under the name of the country in which it was produced. The name of the country is kept in the trade even up to the present time, but associated with this name, are quality names soon after the beginning of the nineteenth century. In 1803, we find a record of the duties collected on raw cottons entering England in the following table:

	Ad Valorem. Per Cent.
Sea Island Georgia	4
Fine Brazil	8
British West India	8½
Foreign West India	10
Inferior Brazil	12
Turkey	12
Bowed Georgia	12½
Spanish Cotton	15 to 23½

The suggestion of classification is very clear in the use here of the two terms 'Fine' and 'Inferior' Brazil Cotton. This cotton was the only one of the seven kinds that was classified, and it had only two classes as per quotation. William V. King, superintendent of the New York Cotton Exchange referred me to Maury's Price Current of Cotton for the year 1808 which has some intimation of the modern cotton classification. This old document has the following table:

Sea Island, Fine
Sea Island, Good
Sea Island, Middling
Sea Island, Ordinary and Stained
Upland, New
Upland, Old
New Orleans
Tennessee
Bourbon
Laguira
Surat

I do not know when this Price Current was first published, nor do I know where these names could have come from except from the current trade names used on the market at that time. These records are the earliest attempts I have found at cotton classification, and therefore are of great interest to me. They do not suggest a permanent organization in classification, but merely the use of certain descriptive words to designate something of the nature of the cotton to which they were applied. The words 'Good,' 'Middling' and 'Ordinary' were applied to Sea Island as well as Upland, indicating a rather lax application to any cottons that were of such and such a quality. It no doubt took some years for these to develop into code words, such as we find in an old record about the year 1833, taken from the price current of Priestly, Griffith, and Cox, Liverpool brokers. Under date of April 1832, they quote as follows:

Name and Grade.	Price April 30, 1832. s	d	to	s	d
Sea Island, Stained, per lb	0	6	"	0	9½
Sea Island, Ordinary and Fair	0	11¾	"	0	11¾
Sea Island, Good Fair to Very Fine	1	0	"	1	8
New Orleans, Very Ordinary to Fair	0	6	"	0	6¾
New Orleans, Good Fair to Good	0	6½	"	0	7⅝
New Orleans, Very Good to Prime	0	7½	"	0	8¼
Georgia Upland, Very Ordinary to Fair	0	5¾	"	0	6⅝
Georgia Upland, Good Fair to Prime	0	6¾	"	0	7¼
Alabama and Mobile	0	5⅝	"	0	6¾
Egyptian	0	9¾	"	0	9
Pernambuco	0	8½	"	0	9¼
Marnanham	0	7	"	0	8½
Bahia and Macio	0	6¼	"	0	7½
Demeraro and Berbice	0	7½	"	0	9¼
Barbadoes	0	6¾	"	0	7¼
Bahama	0	6½	"	0	8½
West India	0	6	"	0	7¼
Carathagena	0	5½	"	0	5⅝
Surat, Ordinary and Middling	0	4⅜	"	0	4¾
Surat, Fair to Good	0	4¾	"	0	5½
Bengal	0	4½	"	0	5

In this quotation we see that the Sea Island has been listed separately from the Upland, but has the same names. While there seemed to still be a lack of organization of the

markets, this showed considerable growth in the direction of classification, which was no doubt far better developed than the written record would suggest. The next record that I have found is in Col. DeCoin's book *Cotton and Tobacco,* which was printed in the sixties. Col. DeCoin was a cotton buyer in North Carolina, and went from there to New Orleans where he was connected for a time. In his book he gives the following classification then used on the New Orleans market:

	Class Upland Cotton.	Prices Assumed to Show Differences.
	Unmerchantable	Almost any price according to degree of damage.
	Merchantable	8 d to 9 d
	Low Ordinary	10 " " 10½ "
	Ordinary	10¾ " " 11½ "
	Good Ordinary	11¾ " " 12 "
1.	Low Middling	12¼ " " 12¾ "
2.	Middling	13 " " 13¼ "
3.	Good Middling	13½ " " 13¾ "
4.	Fully Middling	14 " " 14¼ "
5.	Middling Fair	14½ " " 14¾ "
	Fair	15 " " 15½ "
	Fully Fair	15½ " " 15¾ "
	Prime	16½ " " 17 "
	Choice	17½ " " 18 "

The history of this particular classification I have been unable to find, but it is almost as complete as any present day list of grade names. It no doubt was used by most of the cotton markets of the world, but it is well to remember that while the markets used the same names, they differed widely as to the quality of cotton that came under a given name. There was every opportunity for endless misunderstanding between buyer and seller, and the names applied to the different grades were abused to the fullest extent. Dana in his book *"Cotton From Seed to Loom",* says:

"No little inconvenience has always been experienced from the fact that quotations in the different markets of the United States were on different basis. Frequent efforts have been made in the past to assimilate them, but always without success, until the organization of cotton exchanges throughout the North and South made it practicable. The first step was taken at the National Cotton Convention held at Augusta, Ga., on the 10th and 11th of June, 1874, when the following report made by Mr. Chaffee of New Orleans was adopted."

This report which was the first effort on the part of the market to formally adopt a system of classification, and to attach to grade names an importance that would be felt throughout the cotton markets of the world, follows:

"First,—that we recommend to the convention the adoption of a uniform classification of cotton throughout the United States to be called the Standard American Classification, and that the convention request all cotton exchanges in the United States to appoint an expert, who shall meet at some point designated by this convention, on or before the first of September, next, when they together shall proceed to make a classification that shall be the American standard, which shall be adopted by all the American exchanges, and official quotations from and after October 1st, next, shall be based on the types prepared and established by said committee of experts.

"Second,—the types to represent the following grades, viz.: Good Middling, Middling, Low Middling, Good Ordinary, and Ordinary."

In accordance with the resolution, the committee was appointed, and J. T. Doswell of New Orleans made chairman. The committee met in New York Tuesday, September 1, 1874 and reached a satisfactory conclusion. On October 1st new quotations were based on American Standard Classification. In New York, Fair and Middling Fair as established by that exchange were added, and at the next National Cotton Convention in July, 1875, which was held at Greenbrier, Va., Mr. Pinckney of Charleston offered a resolution which was adopted that these two grades Middling Fair and Fair be added to the list of grades adopted a year before, and that the Committee on Classification of the New York Exchange be requested to put up samples and forward to other exchanges. With all these changes a difference remained between the American and the Liverpool classification, and an attempt was consequently made to secure an international standard. In the fall of 1876 the Liverpool Cotton Brokers' Association presented to the National Cotton Exchange a case containing a complete set of their official standard samples for American cottons. The types were as follows: Good Middling, Middling, Low Middling, and Good Ordinary, for each of the following growths: Uplands, Mobile, New Orleans, and Texas.

At the third convention held July, 1877, this subject was brought up and a resolution by Mr. Lafitte of New Orleans was adopted, whereupon an international standard of classification was effected. In this resolution it was recommended that the Liverpool standards be adopted,—that types of Upland cotton be made up in New York by a board of eight experts, two from the New York Exchange, two from the Charleston Exchange, two from the Savannah Exchange, one from Norfolk and one from Cincinnati,—that types of Mobile, New Orleans and Texas cottons be made up by experts to be appointed by the exchanges of those places respectively. The New York Exchange did not take action but continued to quote the American Standard of Classification, and as per the statement of President George W. Neville, has adhered to this classification ever since it was adopted.

In order to meet the delicate differences of cotton produced over a large area, and gathered during the late summer, autumn and early winter months, the New York Exchange finally got on its list thirty different grades as follows: Fair, Strict Middling Fair, Middling Fair, Barely Middling Fair, Strict Good Middling, Fully Good Middling, Good Middling, Barely Good Middling, Strict Middling, Middling, Strict Low Middling, Fully Low Middling, Low Middling, Barely Low Middling, Strict Good Ordinary, Fully Good Ordinary, Good Ordinary, Strict Good Middling Tinged, Good Middling Tinged, Middling Tinged, Strict Low Middling Tinged, Low Middling Tinged, Strict Good Ordinary Tinged, Fully Middling Stained, Middling Stained, Barely Middling Stained, Strict Low Middling Stained, Fully Low Middling Stained, Low Middling Stained. This long list of grades no doubt proved somewhat tedious to any except the long experienced and was reduced to eighteen, four years ago.

The latest development in cotton classification is that undertaken in 1909 by the United States Department of Agriculture, in an effort to establish standard grades to be known as Official Type Standards. In order to accomplish this, Secretary Wilson in accordance with an act of Congress, called together several expert cotton classers from different parts of the country who, in conjunction with three experts of the Department of Agriculture, established nine grades to be known as Middling Fair, Strict Good Middling, Good Middling, Strict Middling, Middling, Strict Low Middling, Low Middling, Strict Good Ordnary, Good Ordinary. Samples that went to make up these nine grades came from the different exchanges and boards of trade throughout the United States, and from European exchanges. This very important work is a big undertaking and should receive the support of the exchanges. I am informed that most of them have already recognized the

Standard Commercial Grades, and that New York has not accepted them because they do not represent the Upland cottons of the United States. They include only the white cottons now, but it is hoped the work will be extended to include the colored short staple cottons and the Sea Island cottons. The exchanges have in a great measure been the means of making the Standard Classification possible, and of bringing to the trade some definite standard of appeal, and they should not only foster every effort to settle this standard but should reap as much benefit from it as any other class of dealers or men.

In the modern market the term Middling is the basis of classification and of the cotton trade, and is a term applied to a definite type of cotton. An expert knows Middling as soon as he sees it, and measures all the other grades by this. This was not true in the earlier history of the trade. Then the term as has been suggested was applied to any medium grade, not high nor low, but of a "medium" or "middling" quality. There was no definite type that could be called "middling."

At the present time "Middling" which is the term for the *middle* grade of cotton, is based almost entirely on the amount of trash and color carried by the cotton. The quality of the fibre has very little to do with the naming of the grade, and this is true with many of our mill operators as well as with the cotton buyers. Only a few weeks ago, it came in my way to examine two samples of "Middling" cotton from different sections of the cotton belt, and after carefully examining them with the hand and eye as is the usual custom, and not finding a great deal of difference, I took them to a fibre testing machine where I broke 250 fibres from each sample, and found a difference that no one would suspect from a superficial examination. One of the samples showed an average breaking strength of 41 decigrams and the other 32 decigrams. This test may not have been absolutely accurate, but it was far more accurate than the eye and the hand can determine, and from the results one sample would be fitted for a 28 per cent better grade of cloth than the other, since a breaking strength of 41 is 28 per cent better than 32.

Some years ago, much more care was taken with lint cotton than is now taken. Then, pickings were ginned separately, and sold sometimes under the name of certain pickings, first, second, or third. If the picking is systematic, and can be done as the cotton opens this is the very best practice, for cotton of the different pickings has a different color and perhaps has enough difference in value to warrant this extra trouble. The mills would make no mistake to offer premiums on hundred bale lots of cotton, that growers and ginners would guarantee to come up to a certain standard of excellence. In this way mills can be the means of bringing on the market a superior cotton fibre. A general lack of organization seriously interferes with a constructive development of the cotton industry in the South. This should be the ideal place of the whole world to bring together the forces of a struggling people and combine the efforts of the many branches of a great industry.

After I have finished with this paper, I have with me a photograph of some work done by D. E. Earle at Clemson College which I wish to show you. The mills need to give especial attention to the staple which enters into the cotton manufacture. A wise selection of the individual bales that are to go into a cloth of certain fineness, and into the warp or weft as it may be best fitted for, is a problem in cotton classification, and when properly looked into, as is being done in some parts of the East and in England and Germany, it will save to the Georgia mills millions of dollars. Most of the mill operators are thoroughly acquainted with the best methods of handling machinery, and labor, but only a few are qualified to pass on the cotton that goes into the cloth. From what I have seen, I believe that almost any expert classer, who knows the cotton in its relation to the cloth into which it is to be made, can take this part of the work in charge and clear a dividend for the mill over and above what it is clearing, of at least $10,000 annually. In this statement I am backed by the best operators in the East, and no doubt all of us agree that the mills are not all getting the maximum income from the present output of cotton goods.

We also see that some mills are clearing greater dividends than others. This is, in a measure, the superior use of the material placed at the disposal of the several mills. Some have claimed that English mills can take the same cotton we use in our Southern mills and double the net dividends from it. Whether this is true, I cannot say, but the South does use a better grade of cotton to make a particular quality of goods than would be required in Germany to make the same grade of goods, and I think it is not due altogether to the class of labor they have in Germany. As I am interested particularly in educational work, I wish to say in conclusion that education of today means the conservation of those natural products and resources of the earth. One time it meant preparation for a kind of intellectual idleness, but the training that a young man should get today, is that which prepares him to see opportunities, and to make them when he does not find them, and help in the upbuilding of the nation.

[The photographs and figures of the waste tests exhibited by Prof. DeLoach are not available for publication. Mr. Earle, who is now connected with the Bureau of Plant Industry, Department of Agriculture, writes that as these tests are not as yet in a complete state, he prefers to withhold the publication of the results. This material will probably appear in bulletin form from the department at a later date.—Editor.]

Notwithstanding the rapid increase in the number of French mills, the production of artificial silk remains far below that of real silk and wholly inadequate to the demand. In 1909 over 32,000,000 kilos (70,547,900 pounds) of real silk were turned out by the world's producing centers, but the spinning factories for artificial silk were unable to deliver more than 1,350,000 kilos (2,976,200 pounds).

The raw material used in the production of the latter is cotton. Its chemical nature does not change after manufacture, and except for some additional process to render it brilliant or incombustible, it is still nothing but cotton. Therefore, the only difference between artificial silk and cotton fabrics lies in the weaving process—mechanical for cotton stuffs, chemical for articial-silk stuffs.

Three processes are in general use, the Chardonnet, the viscose, and the one called vegetable casein (*caseine vegetable*). Competition is based on cost. From that point of view the viscose process seems to be the most desirable, costing only $1.35 to $1.55 per 2.2046 pounds, but that is still considered rather dear.

Mill Conditions and Market Reviews.

SOUTHERN MILL SITUATION.

(*Special Correspondence.*)

The month of June closes one of the most successful summer months Southern cotton mill men have experienced in over three years. The manufacturer is in the saddle, and he is dictating prices. A complete reversal of conditions prevailing last June has been effected and the pessimism, which prevailed a year ago, has changed to confidence and general satisfaction over trade conditions. Prices during the year have increased in all lines to the point where manufacturers are making a good profit on production. This time last year practically all Southern mills were curtailing heavily, and curtailment, it will be remembered, was kept up through the summer and autumn. Today practically all Southern spindles are busy, and in many instances night work is necessary to keep up with business. Many mills are sold ahead to September and in some cases later. Even the threatened agitation over the tariff schedules, as well as the excitement over politics, have failed to upset what is pronounced on all sides altogether satisfactory trade conditions.

The month of June has been notable also for the conventions held. The North Carolina Cotton Manufacturers' Association met in Charlotte last week with 700,000 spindles represented. Little action of importance was reported. C. E. Hutchison, of Mount Holly, N. C., was elected president of the Association. J. L. Erwin, of Concord, N. C., 1st vice-president; D. Y. Cooper, of Henderson, N. C., 2nd vice-president; J. H. Webb, of Hillsboro, 3rd vice-president; and F. L. Black, of Charlotte, secretary and traffic manager.

The South Carolina Cotton Manufacturers' Association held the annual convention in Columbia, S. C., on June 13, when reports were submitted showing the industry in South Carolina to be in a prosperous condition. Officers were elected, as follows: E. A. Smythe, president; Eugene Verdery vice-president and Charles S. Manning, secretary. One hundred and fourteen cotton mills were represented at the Columbia meeting.

It is an interesting fact that the matter of chief interest apparently, before the North Carolina spinners, was the question of child labor in the mills. After passing sundry resolutions announcing their position on various legislation proposed, and after considering all phases of trade conditions, the association went on record as opposed to any changes in the present child labor laws in North Carolina. The manufacturers expressed themselves as being ready and willing to do all in their power to improve conditions in the mills, and to aid in keeping children out of the mills, but it seemed to be the opinion that most of the agitation for more drastic laws comes from fanatics who know very little about actual conditions in the mills. It is an undoubted fact that the present child labor law in North Carolina is resulting in much good, and is a success.

In South Carolina, equally remarkable improvement is reported as a result of the child labor law in that State. In fact, according to a report of Commissioner Watson, a decrease of 33 per cent. in the number of children in the South Carolina mills has been effected during the past year. This estimate is based on reports from 79 of the largest mills in the State. Today there are only 2,734 children in South Carolina mills under 16 years of age, as against 4,221 for 1911. The report also shows that today no children under 12 years of age are employed, while in 1911 there were 168.

Another meeting of great importance was that of the Southern Textile Association, with several hundred members in all Southern states, which convened at Greensboro, N. C., on the 29th. A full report of this convention will be found elsewhere in this issue.

What is known as the Parker mill merger, of Greenville, S. C., is rapidly taking shape. Charter has just been issued the Hampton Mills Co., of Columbia, S. C., with a capital stock of $7,000,000. This company is one of the two groups constituting the Parker Cotton Mills Company. The following mills in Columbia will be taken over by the company: Olympia, Capital City, Granby and Richland. It is said the mills at Camden, Chester and Winsboro, S. C., will be operated by the company. The main office of the company will be at Columbia and the mills in this group will be controlled from the Columbia office. Lewis W. Parker and others are the incorporators.

The second group will be controlled from the Greenville office, it is said. In this connection it may be noted that permission has just been granted the Monaghan mills of Greenville to increase its capital from $1,050,000 to $2,500,000. The Victor Mfg. Co., of Spartanburg, S. C., files notice of its increase of capital from $950,000 to $3,500,000. The Hampton, the Victor and the Monaghan will be the three big Parker groups, it is understood, and the consolidations are said to be for the purpose of effecting more economic operation, extended selling power, etc.

Another convention of the month was that of Cotton Manufacturers' Association of Georgia, who met at Warm Springs, Ga., on the 11th and 12th. A full account of the proceedings will be found elsewhere in this issue.

Friends of W. L. Ball, who has been agent of the Tallassee Falls plant of the Consolidated Cotton Duck Co. for the past 3½ years, will be interested to learn of his transference to the general managers department of the International Cotton Mills Corporation, with offices at 86 Worth street, New York City. He will be succeeded as agent by F. D. Milstead, formerly of Tallassee, Ala., but more lately of Atlanta, Ga. Both gentlemen are well known in cotton manufacturing circles.

A commercial agent of the Department of Commerce and Labor reports that one of the largest and most important cotton-goods dealers in Turkey is very anxious to purchase American sheetings. The qualities which are particularly wanted are 36-inch, 3.50 and 3.75 yard goods with 64-68 picks per inch. The same construction, but in all widths from 30 to 54 inches, can be sold. This is a splendid opportunity for American manufacturers to place their goods on that market. Samples and prices should be submitted with the first communications. For further information address Bureau of Manufactures, Washington, D. C., and refer to File No. 8789.

NEW ENGLAND MILL SITUATION.

(*Special Correspondence.*)

The half year closed with the mills well employed and with continued promise of improvement. The fine goods situation is gradually becoming better and production is being restricted on plain fine lines that are being sold in the markets below cost. The last week of the month witnessed a decided revival in print cloths and convertibles and prices have recovered all that was lost in the dull weeks of May and in the early part of June.

The scarcity of operatives is still a matter of great concern to manufacturers. More machinery could be operated on the orders that are tendered if help could be found sufficiently skilled, or willing to accept offers to work. Labor troubles growing out of strikes have been pretty thoroughly eliminated. The strike at the Lancaster mills in Clinton, Mass., was brought to a close last week after a nine weeks struggle. Minor difficulties have occurred at the Barnaby mills at Fall River, and the Barnard mills in the same city, but they are now over.

Sales of print cloths for the month of June exceeded the output and several of the mills that have not been paying dividends are again resuming disbursements on a small scale. At Fall River, the mills have looms idle to an extent that lessens a full product about 60,000 pieces a week. Some part of this is due to the light demand for fine plain combed yarn goods, but most of it is traceable to the difficulty of securing suitable operatives. A very considerable business has been booked on cloths of odd construction for specialty converters and for the manufacturing trades. There has also been an increased call for shirtings in fancy weaves from print cloth yarns. Umbrella cloths, curtain cloths, and many sheer constructions for printing purposes have been ordered, so that at the present time the mills have about two-thirds of the possible output for July and August bespoken.

Printed goods have not sold as well as usual in the finer grades for summer wear. Yet the large printers are busy on other lines and bid fair at this time to make a record output for the first nine months of this year. Printed draperies, flannellettes, percale, and crepes, are figuring in the output in a large way. Just as the month was closing there was some prospect that bandannas will be wanted in the political campaign that is ahead and printers have been busy looking up styles that were popular in 1888 when Cleveland and Thurman were candidates for office and the printed bandana figured as a party emblem.

The demand for prints for export has continued steady and the shipments have been large. It is believed that at the present rate of progress New England printers will ship out of the country a sixth of their output, on narrow cloths. There is some expectation that prices will be advanced from the basis of 5¼ cents for standards to 5½ cents soon after the holiday and one large printer is stated to have so advised his trade.

Branded bleached cottons were advanced to 8¼ cents for Lonsdales and low count goods were also marked ⅛ cent higher. Business in other bleached lines was stimulated by these announcements and it is expected at this time that general advances will follow, particularly since the gray goods markets have held firm and are now on a basis of 6⅞ cents for 4-yard 80 squares, and 6⅜ cents for 72 x 76s. The business in bleached lawns and linons has been limited, but the trade in nainsooks and longcloths has been good.

Leading brands of staple ginghams are sold ahead for five or six weeks and some patterns are not available on new orders for deliveries before September. Dress ginghams, on the other hand, have not been moving well. Shirting chambrays and madras have sold well and are being made for the cutting trade for all deliveries into spring of next year.

Reorders on fall cottons, such as blankets, domets, flannellettes, etc., have been much larger than usual and there is every expectation of a scarcity in many of these lines in August. In fact the cutters who have been increasing the use of 36-inch goods in the past two years are already short of many numbers and are trying to induce agents to give them additional deliveries as late as October. The advance fall business of jobbers as a whole has been larger than usual and this accounts for the pressure that is seen in mills making the best grades of napped goods.

Mills making duck, denims, and tickings, are very well employed. The mills that make standard grades of cheviots and heavy colored cottons for working suit purposes are busier than they have been in four years and deliveries are considerably delayed. Standard tickings are fully as well under order as they were a month ago, while some of the best known brands of fancy colored duck and denims cannot be had on new orders earlier than September.

Standard drills are still quoted at 8 cents, and Pepperells are sold ahead through August for deliveries due to India. Converters have also been buying many heavy string cloths for many purposes and there has been quite a general placing of future business on some lines of standard twills and drills, and specialties for linings and other purposes. The demand for cloths for printed flannellettes has expanded steadily and some of the best known mills that make high grades of soft yarn cloths have all the business they can handle for some time to come.

The business offered on fancies and novelties from fine combed yarns has been large enough, but prices have not been satisfactory. They are generally higher than values current on plain combed yarn cloths yet the high cost of staple grades of cotton and the high wages current make it necessary to get better prices than many converters are disposed to pay.

The fine goods mills are not producing in excess of 85 per cent. of a possible output. They could not do much better if larger orders were tendered, because of the complications concerning operatives. The demand for fancy voils, fancy poplins, piques welts, cords, and crepes continues and many of these lines have been ordered for delivery well into the spring. The converters are showing their new spring samples and are getting some business. Reorders on these goods are already beginning to come in. Mills were unwilling to take much of the new business because of the operation of a new fines law in Massachusetts, but the Supreme Court of that State has now decided that it is possible and legal for mills to discriminate in wages between poor work and good work, leaving mills freer to take much of the novelty business that was being declined. A very substantial business on fine shirtings has been booked.

Mills making crashes and towellings of various descriptions are as busy as possible making deliveries on old orders. They have begun to book further new business from the

jobbing trade and on some lines it is impossible to handle the trade offered. As a rule the yarn mills are fairly well employed. They could be busier and still not complaining. Quilt mills are very busy. The three leading mills are fully sold for fall and some large orders have recently been accepted on specialties for hotels, steamboats, institutions, etc. There has been a broadening in the demand for general lines of fancy products in cottons despite the restricted trade among jobbers at the close of their half year.

These goods must be ordered ahead and mills that have not been getting business freely are now beginning to look ahead to the end of the year on considerable new business that is either booked or is near at hand. Included in this class are mills that make waste products, battings, etc.

Finishers and bleachers have not been accumulating large orders for as late delivery as some of the cloth mills. At the same time there are several concerns that have been pushed for deliveries of goods a few months ahead and there are some of the large concerns that will not promise new shipments within seven weeks of the date of order. Much of the hesitation noted in placing forward business is undoubtedly due to the ephemeral styles that are in vogue and the constant effort on the part of converters to develop novelties. Dyers and finishers are all getting a great deal of heavy cloths and are doing much less than a normal amount of work on light weights.

Some of the interests centering in New Bedford have been trying recently to buy finishing plants to be operated in connection with the mills. The Crystal Spring Bleaching and Dyeing Company, at Assonet, Mass., was looked over recently by two or three parties of capitalists and there are rumors of changes about to take place in other directions.

The machinery men are getting more business every week. There is no great rush on, but all reports agree that more new business is offering from established mills, and some new projects that have been in the air for some time are getting into shape for launching. It is not expected that there will be any large additions made in New England this year, but many small ones are planned and all the projects that were held in abeyance last year are now getting under way. Most of the large shops are now running full time. Some could run larger forces if they were pushed.

Mill stocks have ruled very steady despite the uncertainties that have surrounded some of the possible earnings of fine goods mills. Boston and Fall River markets have held especially well and are now pretty bare of desirable shares at the off prices current two months ago.

An American consul in a South American country reports that a business man in his district wishes to act as manufacturers' agent for cotton cloth, flannels, clothing, etc. He is prepared to give bank references, and to satisfy his principals that he can sell goods for them, if prices and terms are right. Interested persons may correspond in English or Spanish, giving terms and prices. For further information apply to the Bureau of Manufacturers, Washington, D. C., and refer file No. 8751.

J. S. Osteen, Supt., of the Norris Cotton Mills, at Cateechee, S. C., has resigned, and W. C. Ward, formerly at Piedmont, N. C., has accepted the position.

COTTON CROP CONDITIONS AND A REVIEW OF THE MARKET.

(*Contributed Exclusively to* COTTON).

BY H. AND B. BEER, NEW ORLEANS.

The change for the better in crop prospects, noted in our review of one month ago, has been made all the more striking by the continnance of favorable climatic conditions in all sections of the cotton region. During the past week opportune rains made their appearance in the northern portion of the Southwest, gradually working southward until the entire vast areas of Arkansas, Oklahoma and all Texas was covered by beneficial generous and well distributed rains, the precipitation being almost uniform, ranging from two to four inches, every section of the Southwest, from the Kansas state line down to the Gulf Coast, and from the Mississippi River to the Mexican border, receiving its full quota of moisture; the arid districts of extreme West Texas included. In the meantime there has been more favorable dry, warm weather in the eastern half of the cotton belt. As a result crop accounts show a marked improvement compared with one month ago, especially in the Southwest, more particularly in Texas where the outlook is reported to be the best in many years past.

The market, nevertheless, has been sustained by a good demand for spot cotton in Liverpool, and by efforts at manipulation on the part of prominent American operators who are want to belittle the improvement in new crop prospects in the South. But European mills hold large stocks of the raw material, and all important European points of distribution have large stocks on hand; Liverpool 1,106,000 vs 748,000 last year; Manchester 104,000 vs 83,000; Havre 252,000 vs 182,000, Bremen 463,000 vs 131,000; various 71,000 vs 44,000, while the stock at Alexandria, Egypt, is 102,000 vs 105,000; at Bombay, India, 640,000 vs 573,000. In the United States ports and interior stocks are 550,000 vs 365,000 last year. Moreover, the South has more cotton in the interior still to market than was marketed after this time one year ago, the largest proportion of which is to be found in the South Atlantic states.

As was indicated by the June Bureau report, the condition of the crop was much better than generally expected, 78.9 compared with the ten year average of 81.5, especially considering the very poor accounts that were in circulation as result of the late start made by the crop in the East Gulf and South Atlantic states and because of the flood in the lower Mississippi Valley. The condition of the crop by states compared with the ten year average was as follows: Virginia 89 vs 85; North Carolina 87 vs 83; South Carolina 83 vs 81; Georgia 74 vs 83; Florida 75 vs 87; Alabama 74 vs 81; Mississippi 72 vs 81; Louisiana 69 vs 80; Texas 86 vs 80; Arkansas 73 vs 82; Tennessee 74 vs 84; Missouri 74 vs 85; and Oklahoma 78 vs 84. As is denoted by their respective conditions, the best crops on May 25th, were reported from the Carolinas and Texas, while the lowest conditions were reported from Georgia, Alabama, the Mississippi Valley states and Oklahoma. The next Bureau report, due July 3rd., will probably show a marked improvement in all states including Texas, although the latter state was one of the highest in condition last month; six points better than the ten year average.

Regarding damage from insect pests, will say that less has been heard thus far this season than for many years

past, the only complaint on this score being of grasshoppers in extreme West Texas, which is only local in character and easily to handle. Insofar as the boll weevil is concerned they are conspicious by their absence in Texas, only an occasional report of their presence being received, and they are less numerous than last year in the affected districts of Louisiana and Mississippi, and the coming of real hot weather will hold in check the ravages of insects of all descriptions.

As to the acreage, the trade is looking forward for the government report of July 3rd. to confirm private advices and estimates of a reduction of six to eight per cent this year, as compared with one year ago. Reports to the American Cotton Oil Co., however, indicate a loss of less than one per cent, and correspondents of the N. Y. Financial Chronicle average the probable reduction at only .54 of one per cent.

THE KNIT GOODS MARKET.

The knit goods market for the past month while doing a fair amount of business in some lines, has hardly come up to expectations as a whole. Business has been overshadowed to a large extent by political windstorms from Chicago and Baltimore. Hosiery manufacturers were in better shape generally speaking than were the underwear manufacturers on the month's business. A better outlook is expected after the meeting of the Jobbers Association in New York on July 8th.

The opening of the month found hosiery lines mostly in suspense as very little had been shown at that time. A few selling agents had slipped out, but the general question of prices was still an unsolved problem. There seemed to be considerable evidence that buying would be posponed until later. There was an attempt on the part of some to delay the opening on balbriggans until June 10th, but many of the lines had already been shown. Jobbers were reported to be too busy with the retail trade to consider new lines. The early lines of balbriggans shown were quoted at prices approximately the same as last year after revision. It was the common belief in the trade that should initial orders prove satisfactory there would probably be an advance in prices made on subsequent business. This was done on fall goods this year and a number of manufacturers booked a good business. However the break in balbriggans last year was causing some to be uneasy about the outcome this year, but the difference so far had all been in the favor of the manufacturer. A number of leading hosiery manufacturers opened up their next spring staple lines and it was reported that opening prices were about the same as last year. There had been quite a little business booked on spring goods in the hosiery line and it was reported that a few of the prices were slightly higher than those of the opening of last season, but taken all in all advances made were very moderate.

As the month wore on some lines of hosiery came to the market showing advances in some instances to the extent of five cents. Hosiery manufacturers were very much in evidence during the earlier period of the month in buying the finer numbers of lisle and mercerized yarns and it was evident that business in fine gauge goods was being found somewhere by the knitters.

The middle of the month found hosiery lines well open and selling agents on the road, but initial buying very light. It seemed to be an optimistic outlook in the balbriggan situation, the only disappointing feature being in the low prices quoted. The sweater situation was one of the strongest features of the market at this period, with prices especially firm. Orders from the Pacific Coast seemed to be inclined toward the brighter colors while other sections of the country were more conservative and demanded greys and whites. Prices on sweaters have been advanced by nearly all manufacturers to conform with the increased cost of yarn. Tan hosiery was still selling well, but not so much was heard about the scarcity of this color and white as was the case a month ago. To all appearances the mills have been able to supply all demands.

As the month closes, there seems to be only fair activity in the underwear line, and underwear buyers seem not to have yet warmed up. Undoubtedly many buyers are waiting until after the meeting of the Knit Goods Buyers Jobbers Association meeting on July 8th. Little seems to be reported as having been done on the road in the hosiery line and a number of buyers have looked the market over and returned home without ordering. Most of the buyers now in the market say they are merely sizing up the situation and looking the goods over and hoping for weak spots in prices. On the whole the prices are about on the par with those of last year.

The probable demand for silk hosiery for next spring is expected to be good. Indications are that plaited goods will be popular. In the underwear lines, union suits seem to be a factor in the east more than in any other part of the country. There seems to be a tendency in hosiery for full-fashioned goods. Underwear salesman from the west report that owing to the unseasonable weather that prevailed in May and June, buyers either purchased moderately or not at all. Hosiery manufacturers are reporting a satisfactory initial business at this time and some of them are getting slight advances in some grades of low end hosiery. The report so far indicates that the hosiery manufacturers have the advantage of the underwear manufacturers in obtaining values solely because they are more optimistic and believe they are entitled to it. July will probably see a large influx of orders in both hosiery and underwear lines, about the time or immediately after the jobbers convention.

THE YARN MARKET.

The yarn market for the past month has been a fairly satisfactory one from a general standpoint, but the amount of business done has been comparatively small because of the deadlock in prices between buyers and manufacturers. Many orders are pending but no agreements seem to have been made in prices, although an occasional soft spot developed in the price line and again some buyer was forced to meet the market prices for spot yarns which he was obliged to have. Prices paid in many cases were slightly above the average quotations for the market. Commission men claim that business could be put through if spinners were not so stiff in their price ideas.

The opening of the month found cotton yarns irregular some dealers holding firm and others giving slight concessions. The market as a whole was quiet and the buying of a hand to mouth character. Combed peeler knitting yarns were firmer and under fair demand and some of the

dealers said they could sell much more than they were selling if the mills were not so well sold ahead. Hosiery yarns were being sought in a very limited way in the Boston market at this time.

The middle of the month found some easing off in Southern yarns in medium counts but spinners of fine yarns were still holding firmly to asking prices. Prices continued irregular to some extent but a permanent weakening seemed very unlikely. Most of the sales made were spot sales, although there was considerable future business in the market. One well known Southern manufacturer stated a few days ago that he had an order for 500,000 pounds of yarn for October delivery and later. Combed yarns remained strong during this period although many knitters regarded the prices as prohibitive. Southern frame spun combed peerler 80s 2-ply on cones ranged in price from 77 to 79 cents and single combed yarn at 25 and 25½ cents on a basis of 10s during this period. In the weaving yarn line the demand for 30s and finer was very light, many buyers believing that prices would go lower. As the month wore on the yarn market conditions remained practically unchanged. In the Philadelphia market knitters brought sparingly, expecting a break in prices, but there were no signs of this and if anything yarns were firmer.

As the month closes, consumers and spinners are still in a deadlock over prices with politics affecting business to a certain extent. There is however, a better tone to the market and some little improvement with moderate inquiries in some lines. The demand for combed yarns is light, but the prices are holding up strongly. Some numbers of carded yarns are plentiful, but prices are holding well. The prospects in the carpet trade seem to be fairly good, while the towel trade is doing a good business and expects to continue if yarns are not advanced so much as to check the demand for goods by forcing the manufacturers to advance prices. Tapes, damask, and hair cloth are as a rule good, and the prospects for the balance of the year are said to be for a moderate volume of business.

In the Boston market the local demand for cotton yarns enlarged slightly in the last ten days and while the buying has been of a hand to mouth character in most cases the general volume of business seems to have increased noticeably. The general prospects for future business from a spinners standpoint are looking bright.

The following are the New York quotations for the end of the month:

SOUTHERN SINGLE SKEINS.

4s to 8s	17 @18	22s	20½@21
10s to 12s	17 @18	24s	20½@21
14s	18 @19	26s	21 @21½
16s	19½@--	30s	25 @25½
20s	20½@20¾	40s	32 @32½

SOUTHERN TWO-PLY SKEINS.

4s to 8s	17½@18	36s	33 @--
10s to 12s	19 @--	40s	34 @35
14s	19 @19½	50s	42 @--
16s	19½@20	60s	45 @--
20s	21 @21½	3-ply 8s upholstery	18 @--
24s	22½@23	4-ply 8s upholstery	18 @--
26s	23½@24		
30s	25½@26		

SOUTHERN SINGLE CHAIN WARPS.

10s to 12s	18½@19	24s	21½@--
14s	19 @19½	26s	22 @--
16s	19½@20	30s	26 @--
20s	21 @--	40s	33 @--
22s	21 @21½		

SOUTHERN TWO-PLY CHAIN WARPS.

8s to 10s	18 @18½	26s	25 @--
12s to 14s	19½@20	30s	26 @26½
16s	21½@22	40s	34 @34½
20s	21½@22	50s	42 @--

SOUTHERN PEELER FRAME CONES.

8s	17¾@--	18s	19¾@20¼
10s	18 @--	20s	20¾@21
11s	18 @18¼	22s	21 @22
12s	18 @18½	24s	22 @22½
14s	18½@19	26s	23 @--
16s	19 @19½	30s	23½@24

COTTON MANUFACTURING.

SOME PHASES OF WELFARE WORK.

BY BERNARD M. CONE, TREASURER PROXIMITY MFG. CO.

Everyone connected with cotton manufacturing in the South is familiar with the wonderful progress made during the past twenty years. Twenty years ago, eastern goods were regarded as standard, and eastern mills always got a better price than Southern mills for the same class of goods. Today all this is changed. Southern goods are manufactured of fully as good quality as eastern; are made in the same patterns; are given as good a finish; are put up in packages fully as acceptable to the trade and command the the same prices.

The question naturally arises, what has brought this all about. At a superficial glance, one might be inclined to say that it was the introduction of modern machinery and methods, and it is true that these have played an important part. But even more important ,and perhaps the greatest single factor to which all this improvement is due is the development in the South of a class of mill operatives possessing equal skill, equal competency, and an equal sense of responsibility to that of the operatives in eastern mills.

They are almost without exception native born Americans, descended from original settlers, from the strong and sturdy stock that made possible the War of the Revolution and the establishment of a free and independent nation. They have inherited qualities of thrift and industry, of loyalty and faithfulness, which have only needed opportunity and encouragement to blossom forth and produce results. This they have now been receiving for many years. The Southern manufacturer has been quick to realize his dependence upon his help and the necessity of thorough mutual understanding and co-operation. He realizes that there are duties and obligations on his part, and almost to a man stands ready to perform those duties in a spirit of fairness and friendliness.

It must be remembered that the relation of a cotton mill to its employees, particularly in the South, is different from those in almost any other kind of manufacturing plant. In most other manufacturing establishments, the relations of the parties do not extend beyond the factory fence. The employer has met his full obligation when he furnishes a pay envelope with the full amount of wages earned. Where his employees go after they leave the factory premises, what they do, and how they live, is no concern of his. With the majority of Southern cotton mills, the situation is entirely different. The help live in

cottages owned by the company, they buy the greater part of their food and other necessities from the stores owned or controlled by the company; they send their children to schools maintained by the company; and the greater part of their lives are lived in the company's mill village.

The first duty of the mill management, and one which every successful mill manager is active in performing, is to keep up his village. He must provide suitable cottages, cottages with sufficient room, sufficient light and ventilation, conveniently arranged. He must think of the comforts of his people, and keep the tenements in repair, leaky roofs and smokey fireplaces must be looked after. Double floors should be provided to keep out winter cold, and houses should be periodically painted inside and out.

These are all details which the mill management must look after, for there is no one else to do so. More progressive mills go further than this. They do not stop at the bare necessities. They set out shade trees along their streets and in front of the homes, build good sidewalks and keep them in condition; distribute flowers, shrubs and grass seed free or at a nominal cost, send company teams to do the plowing and encourage the people to beautify their premises by offering prizes.

Then it is the duty of the Mill to keep the village in a sanitary condition and to look after the general health. Proper drains and ditches must be laid and must be kept clean. Stagnant water should not be allowed to accumulate. Every spring the edges of all mill ponds and marshes should be sprayed with kerosene to prevent breeding of the malaria bearing mosquito. Outhouses should be built of a sanitary type to keep out flies and prevent the spread of infection and they should be looked after most vigorously. The supply of drinking water is usually a matter under the jurisdiction of the mill, and is very important. Where possible, bored wells ought to be provided. Where there are open wells, they should be cleaned regularly. If a case of contagious illness arises, it must be looked after and isolated and every house in which there has been such a case should be disinfected. All of this work requires the employment of a regular force of outside hands, and where a mill is in position to afford it, it will certainly be found to be a paying investment.

As further precaution against disease, all school children should be vaccinated, and though it often requires patience to overcome the prejudice of some parents, in the interest of general health, this rule ought to be rigidly enforced. Recent medical investigations have also shown that many children suffer from impaired growth, deafness, deficient mentality and other ills as a result of adenoids, enlarged tonsils or the hook worm. Those who are looking far enough ahead to think of the efficiency of their employees in the rising generation, will do well to consider these matters, to have the school children submit to medical examination and to encourage parents to have their children treated where it is found necessary.

In Southern mill communities, the duty of educating the children usually falls on the mill management. Sometimes this is done in cooperation with the county schools, or by supplementing the short term usually afforded by the latter. But many of the larger mills have built their own school buildings and maintain independent schools. These schools are open the full nine months term, are graded the same and furnish the same education as city schools. Indeed it is safe to say they are superior as a rule and more effective in their results than the average city school. The teachers' duty does not end with her class room work. She is required regularly to visit the home of every child under her care. She becomes acquainted with the parents and plans and advises with them and cooperates for the welfare and advancement of the child. This mutual interest is further stimulated by frequent public exercises and entertainments at the schools and by mothers meetings, at which the teachers and the mothers meet together, go over the work and confer about what is being done and what is best to be done. Some of the mills maintain free kindergartens in connection with their schools. There is a difference of opinion as to the value of the kindergarten. Some think the child at the kindergarten age too young to be subjected to discipline and restraint. But the work in the Kindergarten is of the lightest sort, mostly songs and play and the training of the fingers and the teachers in the graded schools find the children who come from the kindergarten make much more rapid progress in their studies.

In addition to these schools and kindergartens, many of the Southern mills maintain a separately organized welfare department. This department is usually in charge of young women employed by the company, who have been specially trained for this sort of work. It is difficult to give a comprehensive statement of just what this work includes. Often it depends largely on the personality of the welfare worker and her assistants. These young ladies establish themselves in the heart of the village. A Club House, a mill tenement, a room over the company's store, or other convenient quarters are given over to them and becomes the nucleus of their work. Here they hold sewing and cooking classes, for it is essential that the welfare worker should be able to teach both sewing and cooking. They get up classes for the school girls, other classes for the mill girls, usually giving Saturday afternoons and one or two nights in the week to the latter, and still other classes for grown up women. They teach plain sewing and dressmaking ,embroidery and fancy work, hat making, rug making, basketry, and raffia work. In fact, anything which any member of their classes shows an interest in or desire to make, they take up with enthusiasm. They organize social clubs, give parties and entertainments, valentine parties, Washington's birthday parties, Easter egg hunts, picnics, and ice cream suppers.

They have garden classes and tomato clubs; teach the children how to raise fruits and vegetables and then how to can and preserve them. They visit every family in the village and form close, personal friendships; advise the women on their domestic problems, often help them to make their purchases judiciously and economically. They make the new families in the village feel at home; visit the sick, look after the poor. In short, they go about helping and befriending, elevating the aims and ideals of the people and constantly inspiring them to higher standards.

Many overseers and superintendents remember the day when front yards were ornamented with tin cans or old bottles stuck half way into the ground to form an edging, and many a yard contained an egg tree, the dead limb of a tree stuck in the ground with egg shells on the protruding branches. This was regarded by some as very ornamental. Soon after the coming of the welfare worker, all this ugliness disappeared. No rule was made against it, no order given to remove it, but the people were inspired with

higher ideas of the sublime and beautiful and of their own accord came to discard these things. They began to clean up premises, to plant green lawns and flower beds, to burn their trash and make their dwellings more homelike and attractive. They began to dress more neatly, to choose more wholesome foods, to lead clean healthy lives and to fill their spare hours with useful pastimes and recreations. They came more and more to patronize the village library, to attend illustrated lectures of travels in foreign countries and to take an interest in what was going on in the world about them.

The welfare department of a mill is chiefly occupied with the women and children, for through these the tone and standard of the community is established. But many mills do a great deal independently for their boys and men. They organize clubs and provide recreation rooms. Some of the mills have branches of the Young Mens Christian Association. At the present time there are 12 of these branches connected with Southern mills and 14 more are promised. Some have gymnasiums, bowling alleys and baths. Some have established mutual benefit associations for their employees. The Southern mill operatives are great lodge folks and have their own chapters of the various orders. They are great church people and the churches in any mill village deservedly receive a great deal of help and encouragement from the mill management, for the church going element in a mill village, as a rule, includes the best element in the community.

Many of the mills have their own brass bands and ball teams. These afford not only a great deal of healthful recreation to those who participate, but are the pleasure and the pride of the whole village.

Of course, the maintenance of all these things, the keeping up of street forces, of the schools, the welfare department, the club houses and recreation rooms, all requires a large outlay on the part of the mills and some have been inclined to hesitate and ask whether it is an investment that pays.

Things like this are not always intended to pay. There are lots of things men do for the pride and satisfaction of doing them, and the enjoyment they get in watching the results. But as a matter of fact, it is an investment that does pay. The result does not appear in dollars and cents, but nevertheless it is there and it is in the profit and loss account, even if you cannot see it or itemize it. It appears in the increased efficiency of the entire working force. People who live good, clean, healthy lives; who are happy and contented in their home surroundings; who live in a cheerful environment; who have interests and ideals outside of their routine work; and who take a pride in the institution they are connected with, work better, more intelligently, more loyally and more effectively than those who do not. The best mill families seek out communities where these advantages are possible, they settle down there and stay there, and when good times are too good, so good that there is a scarcity of help and not enough to go around, it is the mills with the reputation of treating their help best that have the least trouble in keeping their looms and spindles going.

The ring or travelier should never be oiled. If the traveller does not run properly, it may be caused by the ring being loose or not set level, or possibly the ring may be worn.

FINE AND FANCY WEAVING.

BY W. A. BLACK, FORMERLY SUPERINTENDENT CAPITAL CITY MILLS, COLUMBIA, S. C.

The subject of fine and fancy weaving in the South is one of much interest just now, and especially among the young men, there having been many of our mills changed over from coarse to fine and fancy work in the last few years. There is now being manufactured in and around the city of Greenville, S. C., damask, lenos, Indian lawns and light dimities that, I am told, compare favorably with any goods of this kind made in the United States today; and while fancy weaving, with us, is in its infancy, its progress depends on us, as men who have direct charge of the machinery, in applying ourselves close to our duty and in the training of the help to use the uttermost care with the roving and yarn at each and every process.

In the manufacture of fine and fancy cloths, there is nothing more important than a good, clean, even, round yarn, breaking at least up to standard, carefully spooled and warped with as few knots and slubs as possible. In preparing warp yarn for the slasher, section beams should be made up in even numbers: that is 4, 6 or 8, never using 5, 7 or 9, as they do not split well on the slasher. For instance: suppose we make a set of warps on seven beams of 400 ends each, or 2,800 ends. The first and large lease rod is, or should be, in the center of the yarn, but in this case, we would have 1,600 ends on one side of the rod while on the other side we would have only 1,200 ends, which will cause breaking of the yarn and many loose ends in the warps.

The slashing of warp yarn for the weave room is something that demands our careful attention, for it is here that we can spoil both the feel and appearance of the goods, or save the weave room from making many seconds; for I believe that at least 20 per cent. of the seconds made can be traced directly or indirectly to the slasher room. Slashing to the weave room bears about the same relation as carding to the spinning room; bad carding means bad spinning, lots of waste and discontented help; while bad slashing does not only mean bad running work in the weave room, but a low production, lots of waste, a high percentage of seconds and usually a high cost.

Among the principal defects in the process of slashing are the following: poorly cooked starch; imperfect drying, by which the ends stick to one another on the beam; streaks of size on the yarn, caused by defective roller cloth; and rust spots from size kettle or pipes. If starch is not properly cooked, it will not penetrate the yarn and will knock off on the loom, leaving the yarn without a finish which not only affects the weaving, but mars the appearance of the cloth.

The secret of preparing size lies in the boiling. Every granule of the starch must be open or else the full sizing value is not secured. In my opinion, most of us use too heavy slasher cloth. As some of us know, there are mills that have changed from coarse to fine work in the last few years, but have not changed their slasher cloth, which is usually of 16 or 18 ounce material. Experience has taught me that a 16-ounce cloth does not work well on anything above 30s, and I prefer using a 14 ounce for 30s, as I think it cleans the yarn better. A good way to tell what your roller cloth is doing is to stand on the shaded side of

the machine and look across the top of the small cylinder toward the light, and if you see size on the yarn, either in streaks or in spots, it indicates that your roller cloth is not doing its duty and should be attended to at once.

A slasher cloth should be trimmed by a straight edge, then carded off so as to give it a taper in order to avoid streaks of hard size on the yarns every revolution of the roller, which, in process of weaving, will crack and scale off, falling under the loom.

One of the little things I fear we overlook, to a certain extent, is the handling of the warps between the slasher and weave room. There is a custom among loom fixers and helpers of using trucks with shuttle points in them to keep the warp from slipping on the truck, the points burying themselves into the warp, straining the yarn and often cutting it, though it may not be noticed until the weaver has woven some five or ten yards and then he don't know the cause of the loose ends. The best truck for hauling warps that I know of is the old style four-wheel truck with leather swings, where there is no metal or wood that comes in contact with the yarn.

I doubt seriously if there is any kind of trade or profession that is more abused than that of loom fixing; and yet the loom fixer is one of the most important hands in the room, for on him, more than anyone else, depends the quality and quantity of the production. He should be a fair mechanic, as well as a good weaver, and thoroughly understand how all parts of the loom are assembled. A good loom fixer will see to it when a warp runs out that the loom is thoroughly cleaned, with all oil holes picked out and all parts freshly oiled before he puts on a new warp; and if on gauze or leno, care should be taken to inspect every part to see that it is set up properly, and that there are no worn or loose parts liable to give way.

In putting a warp on the loom, too much stress cannot be put on the setting and regulating of the harness or shed, no matter what kind of goods you are on, for here, to a very large extent, depends the quality of the product. In regulating the shed, the fixer must be governed by the kind of weave he is dealing with ,for obvious reasons, on some dobbie weaves, we want as large a shed as we can get, while on lenos we want it as small as it is possible to run with, on account of the additional strain put on the yarn by the crossing of the ends, which takes place between the reed and harness.

There is nothing that affects the appearance of a finished piece of goods more than the selvage. A cut of cloth may be woven perfectly and have a rough or frazzled selvage and it will spoil the whole piece. There are several things that will cause a bad selvage. One is that the harness or selvage motion is not properly timed; another is caused by the temple not being properly set to the fell of the cloth, and when the lay is brought forward in beating up the filling, considerable strain is brought to bear upon the selvages, causing them to break.

Probably one of the most frequent troubles in fancy weaving is that of skipping or as some of us call it, overshots. This is the failure of any one harness to lift when it should and therefore the filling floats over the ends that are drawn in that harness where they should be under. This fault may be caused in many ways; in some cases the cylinder may have slipped out of position in which case some of the pegs may not lift their fingers. A peg may get bent slightly to one side and in such a manner that when the bar of the chain in which it is placed comes under the finger where it should, will pass between it and the adjacent fingers. Again, this may be caused by a short peg in the chain, which will raise the finger but not quite enough for the hook to catch the knife. If from any cause one of the hooks should become bent, its action will be very uncertain. In any case when skipping occurs, the ends should be traced from the cloth to the harness in which the ends are drawn and by carefully watching the fingers and hooks one can usually locate the trouble.

An overseer of a fancy weave room should be a designer, or at least have some knowledge of its principles, otherwise, he will always be at a disadvantage, not only among his fixers, but with his weavers. He should have his cloth inspected by the second hand or by some other competent person at least once a day on the loom, noting any kinky filling, miss draws or anything that might effect the quality of the cloth.

ECONOMY IN OPERATING A SPINNING ROOM.

BY T. M. MCENTIRE, SUPT. LORAY MILL, GASTONIA, N. C.

In discussing a subject of this kind we must realize that the experience of the spinning room overseer is as varied as the number of spinning rooms. There is no doubt that those of us who have spent some time in this department of mill work will differ as to many details, still every one who has been successful has found there are certain important things in operating a spinning room that must be recognized and dealt with in only one way. One of the most important things in operating a spinning room is that the overseer should be a good manager of help. He should be a machinist, not simply a man who has served an apprenticeship for a stated length of time, but one who can understand and apply the principals of machinery to any machine. A man who can recognize the merits of a new invention and then so govern its operation that its best service may be attained. One who does not possess this qualification may by employing skillful help and other devices appear successful for a time, but sooner or later the false shell which surrounds him will give way, and prove to him the necessity of mechanical ability in the operation of a spinning room.

An important factor in this department of mill work is the help. The day is near at hand when the mill with the most skillful help, is the mill that will be most successful in its output, and nowhere does this count as much as in the spinning room, due in a great measure to the large percentage of young people in this department.

There is a mutual relation of respect that must exist between the overseers, second hands, section hands and help, that goes to make up in a great part the success of the room. The second hands, section hands and especially the overseer, must at all times so conduct themselves as to command the respect and confidence of those under them and of the people of the community in which they live. Unfulfilled promises, partiality and immorality on the part of the overseer or second hand makes an organization impossible and without a good organization there can be no success. Similar good conduct must be demanded of the help.

Right here in the South, we have the best help in the

United States, and the reason they are not a great deal better than they are, rests on those in authority over them. We are continually trying to move our help from one mill to another. We should discourage this as it is detrimental to the help and to the mill.

In order to obtain the best results from the frames, they should be lined and leveled about every 18 months to two years. Steel rolls should be taken out and cleaned about every eight or ten months. If this is done as it should be, we would save from 1/4 to 1/3 of a horse power per frame. The cost of leveling and lining a frame should be about $1.20 a frame. The cost of cleaning the steel rolls for two years should be near $3.00. This will clean the steel rolls three times in two years. Thus the total cost of leveling and lining the frame, and cleaning the steel rolls three times in two years would be about $4.20. Suppose the power cost $18.00 per horse power, (this is placing the cost of power at a low figure, in most mills it costs a great deal more.) After having paid out $4.20 for lining and leveling the frame, and cleaning the steel rolls, there will be a saving in power for the mill of about $1.75 per year, or a saving of $3.60 in two years. In addition to saving power it will prolong the life of the frames to have them lined and leveled properly and the steel rolls cleaned. While saving power, you are also saving the frames and belting.

After the frame is properly lined and leveled, the spindles should be plumbed. Before proceeding to plumb the spindles the overseer should have the spindle plumber go over the spindles to see that there are no crooked spindles in the frame. The proper way to plumb spindles is to let the traverse run up as high as it will go. The spindle plumber should be in possession of two gauges, one for setting the rings at the top of the spindle and one for setting them at the bottom. After the spindle plumber has adjusted all of the spindles at the top, the traverse should be run as low as it will go without touching the ring rails. After the ring rail has been run to the bottom, the spindle plumber should loosen the nut which holds the bolster to the spindle rail, and pack with paper between the bolster and spindle rail where the ring comes nearest to the gauge. When the proper amount of paper is placed under the base at the bottom, the spindle will be perpendicular, or in other words in the center of the ring when the traverse is at the top and also when it is at the bottom. After the spindle has been plumbed, the guide wires should be set to it. When this is done the overseer of the room should look over every spindle, both at the top and the bottom before starting the frame. After the spindles have been properly plumbed once, the process should be repeated in 15 to 18 months. It will require about half the time to plumb the spindles the second time that it did the first. The cost of plumbing the spindles and setting the guide wires is usually about $2.50 to $3.00 per frame. When this is done as it should be, with ordinary care in operating the frame, much better results will be obtained. It will increase the strength of the yarn if the sprindle is set to the center of the ring both bottom and top. If the spindle is out of the center at the top or bottom it will tend to wear the ring more on one side than the other, and this will cause the travelers to give out much quicker. If the spindles are set both at the top and bottom in the center of the ring, I believe that I would be safe in saying, that the amount of waste saved in the spooler room in warping, and in the weave room, would twice pay for the cost of plumbing the spindles. In addition to this the increase of production in the weave room, if it is a cloth mill, and the strength and evenness of the yarn if it is a spinning mill, would more than pay for the expense and trouble.

The tying on of the bands is a very important thing. It is essential that all the spindle bands on a ring frame should be of the same tension, or as near that as it is possible to tie them. The bands should be fairly tight, but not so tight as to put an excessive strain on the spindle. If this is allowed it will prove detrimental both to the spindle and bands and more power will be required to drive the spindle. On the other hand, the bands must not be so slack as to prevent the spindle being driven the correct number of revolutions per minute, as this causes soft spun yarn and soft built bobbins and the ends will be constantly breaking down. This, of course, will increase the waste account.

Another cause of waste in the spooler room, which is made in the spinning room is tangled bobbins. These are made by lifting rods sticking. Some mills have more trouble with this than others. A good method is to oil the lifting rods with a light lubricating oil, something similar to the oil used on spindles, about once each day. If this is properly done there will be no trouble with tangled yarn and stuck lifting rods. It will decrease the waste account at least from 3½ to 5 per cent in the spooler room. Of course oiling the lifting rods would naturally cause the spinner to do a little more cleaning than he otherwise would do.

Doffers should not be allowed to break down more than two to five ends to the side in doffing. The overseer should not allow the doffers to let the frame stop before they are ready to doff. Every doffer should piece up his own ends. The doffers should be arranged four to the set and not over six doffers to the set, with one head doffer. The overseer should not allow the frames to run any length of time without piecing up their ends after they have been doffed. About once each week the overseer should have the doffers clean all the strings and yarn off of the spindles. If this is properly done it will help the overseer to hold his waste account down.

The overseer should so arrange the section hands that they could have enough spare time during each day to look over and examine the rolls of two frames, and if there should be any bad ones in the frame, the section hand should take them out and replace with new ones. Sometimes rolls that should be taken out will run for several days before the spinner will notice the end running badly. If this is attended to as it should be it will enable the spinner to keep her work cleaner and will give smoother yarn and will also leave less scavenger roll waste.

Another way of waste saving is to cut out unequal lengths on the warper beams which is placed under the slasher. This is probably the chief trouble in the warping department. I have known this to be the case in a number of mills. In some cases it is not the fault of the warping department, but is sometimes due to unequal tension on the beams of the slasher. Where this is not so, it is usually due to a very slight variation in the diameter of the measuring rolls. A variation of only one hundredth of an inch will make a vast difference in the total length of the yarn, for the roller turns four times for each yard, and

on many beams there are 24,000 yards, multiplying the error ninety-six thousand times. Assuming that the beams has eight wraps, or 24,000 yards, this variation would amount to ninety-one yards, and even half of this would cause a big loss. The writer knows of one mill that was losing at the rate of $3.00 to $3.50 per day, in having unequal lengths of yarn on the beams.

These are a few of the ideas that occur to us. While they may not embrace all of the important things that should be done in a spinning room, they are to my mind, the ones on which most stress should be laid. The one most important thing, however, is something that cannot be described by tongue or pen—something which cannot be taught verbally or by thesis—that is, the power to command or lead as the need may be, those under you and to induce them to take an interest in their work.

POINTS ON CARDING COTTON.

BY W. S. DEAN, OVERSEER CARDING, LOCKE MILL, CONCORD, N. C.

Three great industries have been developed because of three absolute human necessities, feeding, sheltering, and clothing. It is my pleasure to express some ideas connected with the first fundamental principles in development of the latter. Carding cotton. So broad is this initial phase of cotton manufacture and so varied are our experiences that little can be said without contradiction.

The first consideration is the cotton used. This is very important. Overseers and superintendents are often handicapped by the fact that the cotton is usually purchased by others and it is up to the overseers and superintendents of the mills to convert this cotton into the goods desired regardless of difficulties. We cannot as a rule change the conditions, but we can and must handle what we have to the best advantage. To do this, I believe it should be the privilege of every intelligent carder to resample, staple and grade each bale before the mixing, and have the mixing made accordingly. If the overseer is not competent the mixing should be arranged by one who is competent.

In this locality it seems to be impractable to make the proper selection of cotton according to best usage. Our cotton, in this locality, is best adapted to weft yarn, while cotton from some other localities is better adapted to warp yarn. However, by the proper selection and mixing of cotton we can make marked improvements in the yarns. Mixing, itself is very important, but I am more concerned now about what we mix rather than how we mix. Practice is the surest guide for the above, but generally speaking, from practical experience, I would say select the cotton that is longest in staple, evenest in length, toughest in pull, and with the best drag for warp yarns, using the other for weft. If you have a very bad bale use only a very little at any one time. Do not let uneven staple get into your warp yarns. The centrifugal forces throw out the short ends, and make a fuzzy roving. This is more difficult to handle in further processes such as spinning, beaming, and weaving, but it can be used in filling yarns, and in some cases slightly to advantage to produce a cover on the face of the goods. The difficulty of spinning it may be overcome with the same amount of twist.

One case I am familiar with is where the mill was using a ¾ to ⅞-inch cotton, and this was followed by a 1 to 1 1/16-inch cotton to produce the same hank roving. It was carried through without much note until it reached the speeders. There a serious variation occurred and as the new stock took the place of the old the roving became heavier, and by the time the longer staple was well creeled the draft gears had been decreased three teeth. Or in other words, if the same gears had been left on the machine the weight of the hank roving would have been increased about 8¾ per cent.

Another case I know of is where two different staples of cotton were used practically the same length as above mentioned, but the better staple was used for warp yarn, while the other was used for filling yarn. In order to produce the same hank roving, run with practically the same drafts and to keep the tension the same where the two kinds were placed on the same machine the best results were obtained by decreasing the weight of the finished lap of the better cotton 4½ pounds or in this case 8½ per cent.

What became of that 4½ pounds? Did it produce good strong yarn? By all means no. It passed out as flyings, strips, sweeps and invisible waste. Whether or not the filling yarns produced from this cotton were of required strength I leave for the spinner to discuss. But there is another side of the question, what must we do with the twist? To continue with the same twist in the card room means bad running work, breaking back in the creel, soft bobbins, and kicks from the spinning room. To increase the twist means less production, increased cost, and dissatisfied help when working for so much per hank. However, this overseer in question changed his twist gear two teeth. Or in other words, cut the production 6 per cent by decreasing the speed of the front roll. It is not my purpose in the least to "knock" in this paper, but I am sorry to say it is quite often harder on us because of inexperienced office men who do not understand thoroughly the practical difficulties the superintendents and overseers have right along this line. They cannot understand why it takes an 8½ per cent heavier lap to produce 6 per cent less production per day with practically the same pay roll.

Supposing other conditions are favorable, but still there is excessive uneveness. It is a very good plan to first see if all dust doors on pickers are set properly. Some times, by going to a picker, while in operation, and opening the door to the dust flue on the opposite side of the large wheel on the screen, by placing your hand inside you can determine whether the flues or the dust room is in proper condition. If but little draft is felt, it is well to at once examine the flues leading to the dust room. If there is a strong back draft, there is some trouble with the dust room, or outlets. I know of one case whereby cleaning out the end of the flue where it made a slight bend at its inlet to the dust room, the number of yarns at once began to show improvement. In another case the total area of the outlet from the dust room was considerably less than the total area of the inlet from the dust flues. In this case several consecutive yards from the lap made under the above conditions showed a variation of 2½ ounces. By opening the outside door of the dust room, several consecutive yards of another lap only showed a variation of ½ ounce. The 2½ ounces meant about ten grains variation on the card sliver per yard.

Another fruitful source of trouble is sometimes found by back drafts and it is sometimes hard to locate the cause, but on investigation it is usually caused by the dampness in the chimneys or dust flues leading from the dust room, forming sheets of dust in the form of umbrellas. These umbrellas will practically close down when the machines are not in operation, and open up when the machines are in operation. The only way to fully comprehend this is to take a trip to the outlet in the dust room while the machines are in operation, having the outside door closed behind you and note the obstructions above mentioned.

Sometimes I wonder how it is we produce good work under certain conditions that exist in so many of our mills. Again, costs are often compared between two mills making practically the same work, and it seems hard to determine why one mill can produce work with less difficulty that the other, and with less expense. Not always, but often this is due to the construction of the machinery.

For instance, some of our supposed to be up-to-date mills for short staple cotton have machinery as below described or equally as faulty:

Diameter of rolls on drawing from front to back 1¼-inch, 1⅛-inch, 1⅛-inch.

Diameter of rolls on slubbers from front to back 1¼-inch, 1-inch, 1-inch.

Diameter of rolls on speeders from front to back 1⅛-inch, ⅞-inch, 1⅛-inch.

Diameter of rolls on drawing speeders from front to back 1⅛-inch, ⅞-inch, 1⅛-inch.

All of these are admirably suited for a medium staple cotton, or about 1¼-inch. Now, suppose we had to use a ¾-inch staple cotton, what would be the results when you cannot set the drawing rolls closer than 1¼-inch and keep them from rubbing, the other rolls being equally as hard to set?

I know of a case worse than this; the rolls were practically the same as above only in one or two places the rolls were for longer staple cotton, but the following machines were in use: 12 x 6 slubber; 10 x 5 intermediate; and 7 x 3½ speeders. What cotton was best suited for these conditions or what was this combination best suited for? It seems in this case the desire was to use medium or long staple cotton and make the bobbin as large as possible, thinking this would cheapen the cost of production. The mill referred to makes from 30s to 40s yarns principally. No attention had been given the fact that the increased speed the smaller spaced machines can be run would thereby increase the production of this class of goods so much more than by the use of large flyers. Of course the finer the work, the more twist to put in roving, and this is governed by increasing or decreasing the speed of the front roll, the speed of the flyers remaining constant. Therefore the faster the flyers, the more speed we can give the front roll, which means more production. I bring this out to show that even if the labor and other conditions remain the same it is impossible to always make a proper comparison of cost and production between different mills.

KNITTING.

THE KNITTED FABRIC.

EXAMPLES OF THE RIB STITCH ILLUSTRATED WITH PHOTO-MICROGRAPHS BY THE AUTHOR.

(Contributed Exclusively to COTTON)

BY WILLIAM DAVIS, M. A.

Next in importance to the plain loop described in the previous papers stands the rib fabric, and it is obtained by a variation of the plain loop in a vertical direction. Ordinary knit fabric shows much more level on the face than back, because the straight portions of the loops are most in evidence. In the back the circular portions cause an irregular appearance. Rib fabric is produced by alternating this arrangement and causing rows of right side fabric and wrong side fabric to occur alternately. Contrary to what one might expect, however, the rows of wrong side stitches do not manifest themselves on the surface, but form a kind of furrow. The face rows are drawn closely together thus causing a considerable contraction in the whole width of fabric, along with a corresponding increase in elasticity. The elasticity can be further explained by the manner in which the stitch proceeds from face to back and vice versa, it is by this crossing that the intersections are increased so that the thread will not serve the same width of cloth as would a plain stitch. The degree of contraction in width depends upon the kind of rib worked. A 1 and 1 rib has one row face stitch and one row back stitch in alternate vertical lines*. A 2 and 1 rib has two rows of face stitches alternating with one row of back stitches. In a similar way are produced the 3 and 1 and 2 and 2 rib varieties.

The degree of elasticity is greatest in the 1 and 1 rib, whilst the 2 and 1 and the 3 and 1 came next in order. Illustration A shows a photo-micrograph of a 3 and 1 rib as seen from the back where the row of face stitches 3 and 1 in a vertical direction can be easily noticed. This fact is of great value in the manufacture of knit goods, for various forms of rib stitch can be used in different parts of the same article. As a general rule the tightest rib is useful for garment extremities, such as the top of hose and half-hose, the wrists of gloves and the leg bottoms of pants, etc. We also recognize the importance of keeping the extremities warm in clothing, and this is brought about by the rib stitch because it grips the part more closely and at the same time serves to keep the garment in position. The extremities also have to stand the bulk of the strain in drawing the garment off and on so that if the ordinary stitch were employed, the extremities would soon go hopelessly out of shape.

In the common ribbed half-hose we have an interesting example of how various forms of rib are made use of in the article. The top requires to be tightest and is generally made 1 and 1 rib. For the leg, this is changed to 3 and 1,

* Verticle lines referred to in this article are shown in the half-tones as horizontal lines. The photographs being better adapted to our columns in this position—Ed.

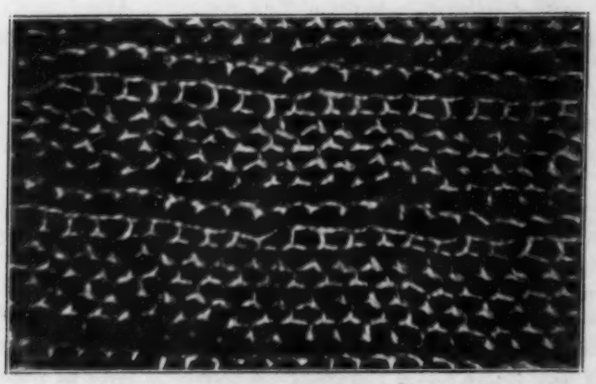


FIG. A. A 3 AND 1 RIB, SEEN FROM THE BACK.

thus producing fabric of greater width and more level appearance. For the heel and underportion of the foot, the rib is changed to plain fabric, the varying surface of the rib having a decided tendency to give discomfort to the wearer at these points. For a plain stitch hose 1 and 1 rib is frequently employed for the top. In a plain stitch glove, the wrist is frequently made from a larger rib such as 2 and 2. The variation in the form of rib in some garments does away with the necessity for narrowings and widenings, thus a 3 and 1 rib on the leg of a hose would be reduced to 2 and 1 to narrow for the lower portion.

Although ribbed underwear is very much in vogue in some countries, it cannot be said to be the ideal fabric for wearing next the skin, owing to the variable surface composed of two heights. This causes discomfort and is only compensated for by the fact that the elasticity removes the necessity for the more elaborately fashioned goods.

The production of ribbed fabric always means the addi-

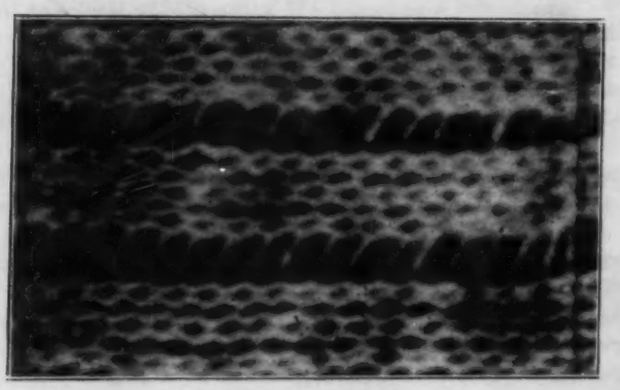


FIG. B. MOCK RIBS.

tion of a second machine termed the rib machine, where loop-forming parts require duplication. On a plain frame, however, the general appearance can be imitated by leaving out a needle at certain regular intervals. If the yarn used be thick for the machine gauge the empty needle portions draw together and form a rib-like furrow, when a thinner yarn is used comparatively with the frame gauge, the empty needle space is not covered up so completely, but the cross yarns are straightened out so as to form cross bars. An illustration of this fabric is shown in photo-micrograph, Fig. B, which is worked on a plain frame where every 4th needle is omitted, or not permitted to knit its loop. If made in a coarser yarn this would represent a 3 and 1 rib, but here a finer yarn has been used so that the fabric widens and the yarn at the empty needle spaces straightens out so as to give the appearance of a kind of lace work. In great Britain this fabric is known as the "Jenny Lind" pattern from the famous actress who popularised this form of fabric. Before rib machines come into vogue the fabric was first made with every second or third needle missed and the loose yarn afterwards linked into stitches by hand causing the loops to be the contrary way, so as to produce rib work.

When knitting on the plain spring needle machine, the loops are first sunk between alternate needles and the whole yarn next divided equally over all the needles by bringing the dividing sinkers into line with the jack sinkers. If for some reason those dividers do not divide the yarn equally, but are collectively pushed too far out or not far enough, then one sinker loop is formed larger than the adjoining one. Those large loops occurring every other needle give rise to a wide space which may be readily

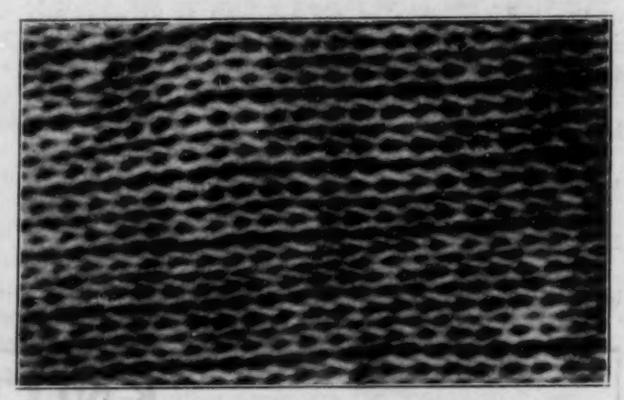


FIG. C. A DEFECT AND ITS CAUSES.

mistaken for a 2 and 1 rib fabric. An illustration of such a defect is shown at Fig. C where the two sizes of sinker loops or wales can be plainly seen.

METHODS FOR OBTAINING HEAVIER FABRIC.

The stitches referred to are largely employed for underwear and hose, but the hosiery fabric is now adapted to such a variety of uses that many different textures have been devised. After the plain fabrics of underwear, the manufacturer turns his attention to cloths which will be adapted

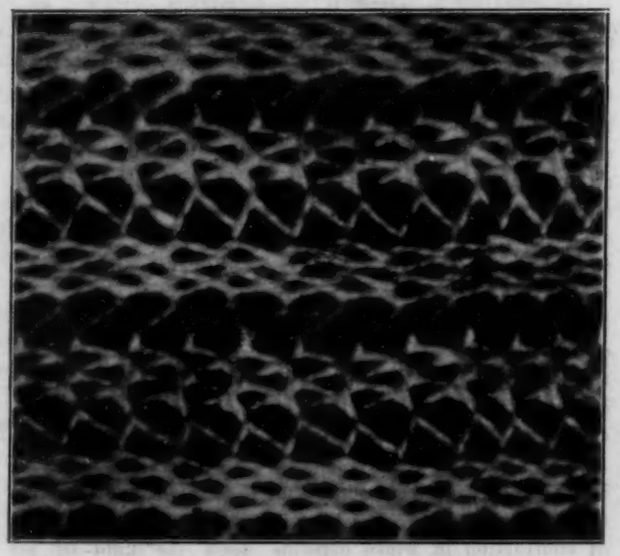


FIG. D. A FABRIC ON THE 2 AND 2 RIB BASIS.

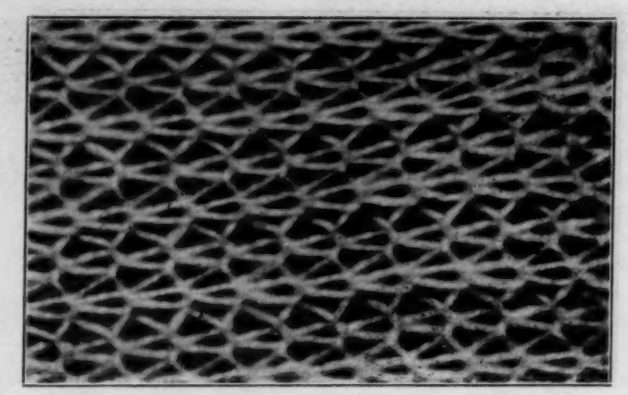


FIG. E. A COMMON TYPE OF FABRIC MADE ON THE BASIS OF 1 AND 1 RIB.

for outer and intermediate garments. In doing so, one of the first requirements is an increased bulk and handle to the fabric. This in plain stitch is not compatable with a fine appearance because to bring up the weight necessitates the use of thick yarns in course gauge. The stitch has to undergo too frequent intersections, therefore we seek to reduce the interlacing as much as possible, so that more yarn will be inserted into a given space. The best known method of doing this is to be found in "Tuck" work which, as the name suggests "tucks" certain of its stitches instead of knitting them. The stitches are seldom tucked more than one course, because to do so would cause too much yarn to collect on the needle shank which would soon bend or break.

The modification brought about is usually on the presser. Instead of every needle being pressed and its stitch knocked over, as in plain fabric, the presser has spaces cut at regular intervals so that the needles under such spaces do not get pressed and the yarn is passed with the old loop under the beard. The presser is so adjusted that for the next course the needles left unpressed are now pressed and those pressed in the last course are left unpressed. Thus on the back of the fabric those unintersected portions of yarn hang and just because they are unintersected can be worked closely together, thus producing a fabric of approximately double weight and fullness. The fabric receives its designation according to the manner in which the presser is cut, a presser with alternate spaces cut will produce 1 and 1 tuck work and so on for 2 and 2, 2 and 1 and other arrangements.

Tuck fabric also affords a wide field for the working of colored patterns, when two or more colors are employed in

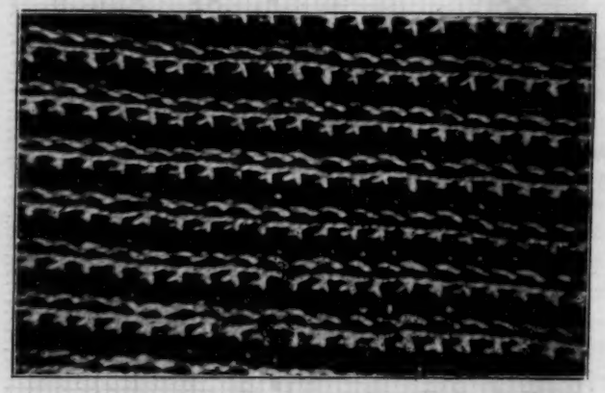


FIG. F. THE SAME AT FIG. E, EXCEPT THE DOUBLE STITCH IS FORMED ON ONE BED ONLY.

conjunction with the pressers just referred to. Where the stitch is "tucked" the yarn goes to the back, whereas the knitted portions show on the face. The yarn alternates between face and back so that its color is only noticeable in portions, instead of continuous lengths. when two colors are employed A and B, the knitted portions of A have the loose or tucked portions of B underneath and vice versa. The making of patterns thus depends on a varied manipulation of pressers and colored yarns.

The same principle is largely adapted to rib fabrics, notably on fabrics produced on the Lamb flat knitting machine. Illustration D shows an enlarged fabric made on the 2 and 2 rib basis, that is two stitches are formed on the front and two on the back needle bed alternately. In the illustration three rows of right side fabric and two rows of wrong side fabric are shown more careful examination however, will show that the rib is underlaid with an extra yarn which lies loosely on the back of the rib and does not show any stitch formation. This is most clearly discernable on the rows of wrong side fabric. This is produced on the "tuck" principle just mentioned and has the effect of enabling much more yarn to be inserted into the cloth, thus producing a cloth of bulkier handle and greater weight.

Figure E illustrates a more common type of this class of fabric made on the basis of the 1 and 1 rib. The yarn is only drawn through its loop on alternate courses so that

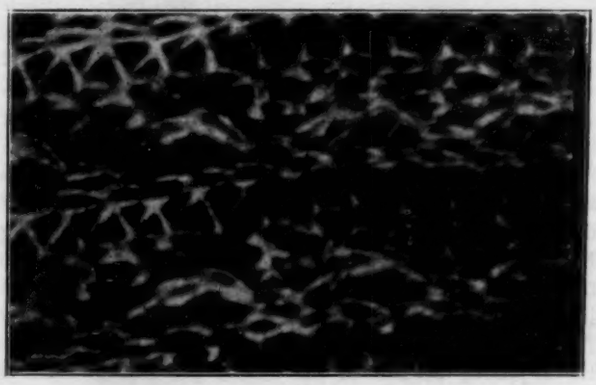


FIG. G. A 2 AND 2 TUCKED FABRIC.

two threads are received in the hook of the needle on both face and back rows of loops. This fabric is most compact and is more used than any other for outer garments, especially garments of the jersey and sweater class.

In the trade this stitch goes under the name of the full cardigan rib because of its being so largely used for the manufacture of men's jackets of the same name. Fig. F is an illustration of a fabric similar to that of Fig. E except that the double stitch is formed on one bed only, the other being worked the same as an ordinary fabric, forming its stitches every course. Consequently on one side it has the general appearance of the one and one rib, whilst on the other its stitches are tucked or formed in 2s. Such a fabric is termed a half-cardigan. The rib portions most in evidence in Fig. F. are the plain parts of the rib, the tucked portions being on the back.

SHOGGED OR TWISTED RIB CLOTHS.

In weaving we have a fabric known as gauze which is characterized by the fancy and ornamental fabrics resulting. This is brought about by certain of the threads of warp changing their positions in relation to each other. Thus yarns 1 and 2 will work for some distance to the right of

yarns 3 and 4 and then cross over to work on their left for a number of picks. This of course draws the warp threads together in sections and gives rise to open portions in the cloth. In knit goods the shogged or twisted rib cloth may be considered analogous to the gauze of weaving, for the back needle bed is made to change its position in relation to the front one so that a zig-zag appearance is imparted to the cloth.

Figure A is a 2 and 2 tuck fabric of exactly the same structure as Fig. D except that the back needle bed is shogged or moved one needle space to the right and left alternately, an effect easily noticeable on the right hand row of the 2 rows of right side fabric. This row works 4 courses on the right and left alternately. When it passes to the right out of its normal position, a space is formed with an elevation adjoining, a stitch which gives rise to a large variety of novel and ornamental effects suitable for ties, scarves, vests and jackets for ladies wear.

Lace or Open Work.

"Lace" or "Open" fabric differs from any of the fabrics just described in the respect that the effect is obtained after the ordinary course of the frame has been worked. Certain predetermined loops are removed from their needles and transferred bodily to adjoining needles on the right or left. This causes such needles to possess no loops and the neighboring needles to have two, so that decided openings show themselves in the fabric. Such openings are produced without considerable elevations alongside so that the surface of the cloth is not rendered uneven, a matter of great importance for underwear garments. It strikes one further as being remarkable that the transferance of one stitch should cause such a large opening. This is the direct result of the support of the stitches above, below and on one side being removed, and each of the stitches mentioned suffers contraction. In examining Fig. 1 which is a photo-micrograph of a stripe lace design taken from the back of the fabric, one can notice the openings occuring regularly in a vertical direction. Every fourth needle has had its loop removed and transferred to the adjoining needles on the left, a proceeding which is repeated after every fourth course has been completed. The openings produced are extremely uniform in appearance which conduces greatly to the neat and smart appearance of such fabric. The best results are secured when fine sizes of yarn are employed, either silk, cotton or fine fibred woolen yarns with little or no surface fiber. Projecting material tends to cover up the pattern and obscure the ornamental effect.

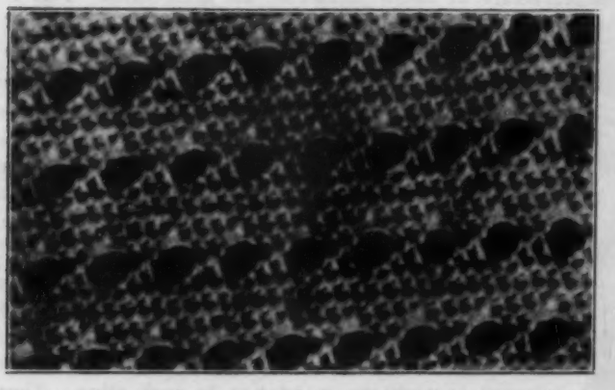
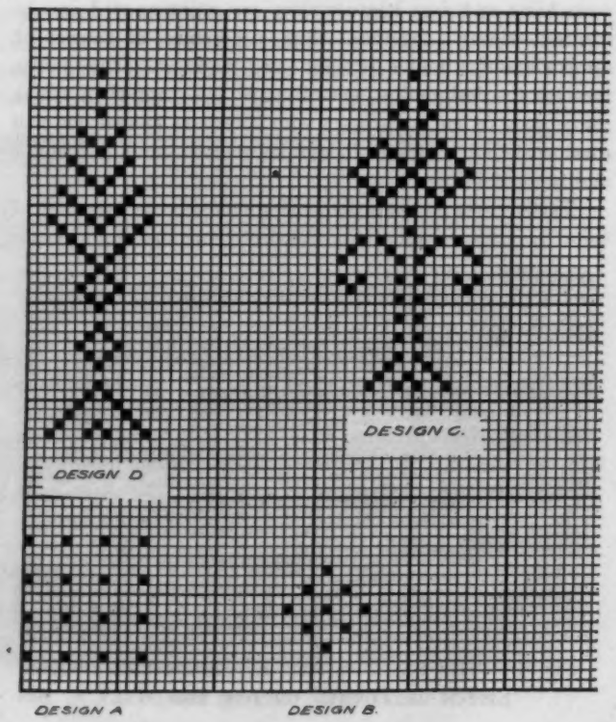


Fig. 1. Lace or Open Work Stripe Effect Shown From Back of the Fabric.

Fig. 2. Lace or Open Work in Diamond Pattern.

The province of lace work in knit goods is largely ornamental, its chief function being to give an elegant appearance particularly to ladies garments. The pattern is largely employed to ornament hose and the busts of ladies' underwear. In the latter case, there are decided advantages in using lace work made on the same frame as compared with pieces of lace seamed or attached to the garment.

In the first place, the lace pieces are usually of some entirely different material and the wearer is rendered constantly conscious of this, again the seams may prove objectionable. When made on the same frame and from the same yarn, the manufacturer has much greater scope in designing and can adapt the pattern to suit the size and shape of the garment. The process incidentally increases the cost of production, because the output of the machine is reduced when making lace work and expensive cards and additional tackle are needed. The formation of lace patterns reduces the heat-retaining property of the article, especially in the case of garments which are exposed, so that they cannot be worn successfully in the open air in cold weather. On the other hand, they are ideal for a succession of hot summer days.



Lace designing opens up a wide subject and we shall require to content ourselves with the chief principles. The designs are represented on the usual squared paper by means of marks and blanks. Each square represents a stitch and a full square indicates a point where a stitch must be removed, the blank squares indicate the stitches which are to be left untouched. In cutting the cards, the worker stamps a hole for every mark on the design paper so that the selecting mechanism of the Jacquard causes the points to descend on the corresponding needles and remove their stitches.

Design A would represent the pattern of Illustration Fig. 1 where the stitch of every 4th needle is removed regularly after every 4th course. In the fabric shown at Fig. 1 the pattern appears greater in breadth than in length, but this is due to the number of courses per inch in width being fewer than the courses per inch in length. Similarly design B shows the model of representing the cloth of Fig. 2, the lace stitches being arranged in the form of a diamond pattern. In lace patterns for hosiery and underwear the ground pattern is usually terminated at the top extremities by a series of arrow pointed effects which give the whole article a finished and artistic appearance. Design C may be taken as a typical pattern for lace busts in ladies garments such patterns being used for the ground. Design D shows the kind of design used to give a finished appearance to the ground, a design used at the upper extremities of the garment, to point it off so-to-speak.

To analyse lace fabrics so as to secure the design for reproduction, it is best to examine the cloth on the wrong side, because in this way the stitch formation can be more easily traced. The patterns of Figs. 1 and 2 easily traced. The patterns of Figs. 1 and 2 were worked on a circular spring needle machine of the "Terrot" type and it will be noticed in Fig. 2 that the stitches are not selected from the same horizontal course of loops right along the width. The courses which form the central portion of the diamond, form the lower portion of the diamond to the right, so the pattern seems to ascend as you proceed round the width of fabric. If the same design were produced on a flat bearded needle machine of the "Cotton's" type, each diamond would occupy exactly the same position all along the width, the top portions being worked simultanously from the same course of loops and similarly for the other portions. With some practice lace patterns can be traced from the cloth on to design paper and arrangements made for their successful reproduction.

THE "KNOTTED" STITCH.

In fashioning knit goods on a flat, spring needle frame, the selvedge loops are transferred farther in to narrow or farther out to widen the fabric. In narrowing two stitches occur on one of the needles near the edge which does not show any considerable imperfection. In widening, however, one needle is left empty so as to cause a considerable space and shows an undesirable imperfection. This defect has been remedied by introducing a point which comes down and spreads the adjoining stitch over the empty needle. This stitch, therefore, extends over two needles and the effect of widening is very much reduced. The "knotted" stitch as it is termed is photographed in Fig. 3.

When it is desired to distinguish one class of goods from another some small marks may be put on to the fabric by using this stitch. The worker simply lifts one side of a stitch and stretches it over the adjacent needle. The opening produced is not so pronounced as the lace stitch, but is still quite distinct and plain enough for practical purposes of distinguishing one lot of goods from another.

The "pearl" stitch has come very much to the front in recent years. It is one of the best known varieties of hand knitting being known by the name of "purl." In the factory, however, the work is known as pearl and the machines are termed pearl stitch machines. For 1 and 1 pearl the hand worker knits one row on the needles, drawing the yarn towards her and casting over the stitches away from her, for the next course the yarn is drawn through the reverse way and the stitches cast over inwards. The result is one row of stitches right side fabric and one row of wrong side fabric alternately. The difference between pearl and rib work is that in the latter the alternation of right and wrong side fabric occurs vertically whereas in the former the alternation of right and wrong side courses occurs horizontally, although this is the case the resultant fabrics are totally different from each other.

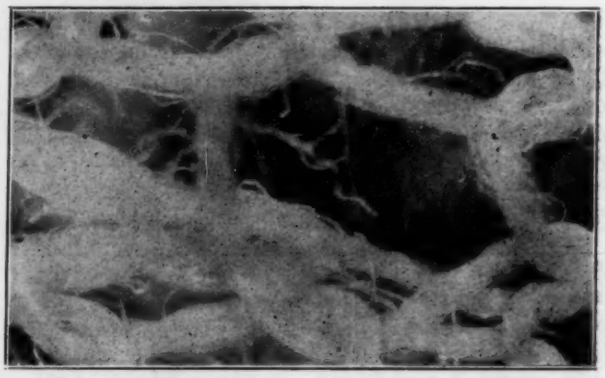


FIG. 3. THE KNOTTED STITCH. THE LOOP COVERS TWO NEEDLES. ITS OWN AND AN EMPTY ONE ADJOINING.

The effects obtainable have been much extended in their scope by the development of the pearl stitch machine which now carries a Jacquard selecting mechanism. Since that took place the fabric has found a large use in garments for outer wear, particularly ladies sweater coats, golfing and other sporting garments. For the latter goods the pearl stitch fabric is ideal because it is so elastic and gives free play to the body and the limbs can be moved much more readily. The effect is greatly improved with the use of thick yarns. popular gauges at present measure from 3 to 5 stitches per inch. The thick yarns show up the stitch plainly and accentuate the raised surface produced by the presence of wrong side stitches on the face of the fabric. Wrong side stitches should not predominate on the surface or the elegance will be detracted from. As the variety is introduced by the stitch the colors are mostly plain, such as lavender, green or dark blue. The yarn should not be too soft or the garment will not stand outdoor wear.

The members of several firms in a city of the Near East have informed one of the commercial agents of the Department of Commerce and Labor that they are anxious to get in touch with American firms selling remnants of cotton goods. Inquiries should be addressed to the Bureau of Manufactures, Washington, D. C., and refer to File No. 8790.

Beware of the little expenses. A small leak will empty a great reservoir.

DYEING, BLEACHING AND FINISHING.

NOTES ON DYEING, BLEACHING AND FINISHING.

The Newest and Latest Chemical Facts from the Laboratories of the World. Prepared for and Contributed Exclusively to "Cotton."

BY J. MERRITT MATTHEWS, PH. D.

On the Cost of Electrolytic Bleaching.

A recent study of the cost of preparation of hypochlorite solution by electrolysis for bleaching purposes has been made by Kershaw in the Journal of the Society of Chemical Industry. The following table gives the various data concerning the operation and efficiency of the different types of electrolysers experimented with:

Type of cell.	Salt used.	Kilowatt Hrs.	Active Chlorine in kilos.
Haas & Oettel	112.5 kilos.	88	10.5
Kellner	90.0	99	15.0
Hermite	35.7 kilos. of salt and 10.8 kilos. of magnesium chloride—49 kilos. of salt.—	27.6	4.35
Mather & Platt	----------	42.5	7.0
Theory demands	0.947 kilos.	1.0	0.574

Based on the production of one kilo. of active chlorine, the following table shows the efficiency of the different cells:

Type of Cell.	Salt Used.		Power Used.	
	Kilos.	Efficiency %	K. W. Hrs.	Efficiency %
Haas & Oettel	10.70	15.5	8.4	21.
Kellner	6.00	27.5	6.6	26.5
Hermite	11.20	14.5	6.34	27.0
Mather & Platt	-----	----	6.07	28.6
Theory demands	1.65	100.0	1.74	100.0

According to these results the Hermite cell appears to be the most efficient with regard to the consumption of power, and this is chiefly due to the fact that the hypochlorite solution obtained is of low concentration. The Kellner cell is the most economical with regard to the consumption of salt.

The cost per ton of active chlorine is given in the following table. The cost of bleaching powder is taken at $23 per ton and of salt at $4 per ton. The cost of power in the estimates is taken at 85 cents per kilowatt hour.

Method of preparation.	Form of combination.	Cost	Remarks.
Chemical	Calcium hypochlorite.	$70.66	
Chemical	Sodium hypochlorite.	101.00	Using salt-cake.
Chemical	Sodium hypochlorite	112.93	Using soda-ash.
Electrolytic	Sodium hypochlorite	109.22	Kershaw's estimate.
Electrolytic	Sodium hypochlorite	115.12	Englehardt's estimate.
Electrolytic	Sodium hypochlorite	402.79	Actual working cost at Poplar, England.

The last figures in this table are significant, as they give the results of actual mill practice on a large scale in the use of the electrolytic method for the production of bleach liquors. This figure does not include any allowance for labor, interest, or depreciation.

From the detailed investigation of Kershaw he comes to the conclusion that bleaching powder solutions are still by far the cheapest bleaching agents, though he admits that in the bleaching of fine goods it is advantageous to employ solutions of sodium hypochlorite, but that this solution can be prepared far cheaper in a chemical manner than by the electrolytic method. In this connection it is interesting to note that in America, liquid chlorine is being extensively employed at the present time for the preparation of solutions of sodium hypochlorite for use in bleaching in place of chloride of lime. Many of the largest and most conservative bleacheries have adopted the use of this very effective bleaching agent, and find the cost much less than the use of electrolytic bleaching liquors.

In connection with this study of the cost of production of electrolytic bleach liquor it may be of interest to include a description of the principal electrolyzers employed in the tests.

1. The Haas and Oettel Electrolyzer.—The latest form of this electrolyzer makes use of carbon as the material for the electrode, and the liberation of the hydrogen gas at the cathode is utilised to effect an automatic circulation of the liquid in the cell. The inner or working cell is a rectangular or stoneware tank divided by the carbons into 30 narrow compartments or cells, each of which has one hole at the bottom and two holes at the sides about two inches from the top. The first and last carbons of the set form the main electrodes of the cell, and the intervening carbons act as secondary electrodes; that is to say, as anodes on one face and cathodes on the other. This inner cell is supported on a brick foundation within a stone-ware tank measuring 72 inches by 48 inches by 36 inches deep, and is filled with a 15 per cent solution of brine to within 4 inches of the top. The carbons are protected at their top and bottom edges with slips of glass of the same width as the carbons. A continuous current of 80 amperes at 100 volts is employed to work this electrolyzer, and as soon as electrical connection is made the ebullition of hydrogen gas at the cathode surface of the electrodes causes the level of the liquid within the cells to rise above the overflow pipes and a rapid circulation of the brine occurs, fresh liquor flowing in at the bottom of the cells. The liquor passing away at the top of the cells flows over cooling plates, and when necessary, the heat produced by the electrolysis is further reduced by aid of cooling pipes placed in the tank. A number of Haas and Oettel cells are in use in America principally in the laundries; but these cells are chiefly of the older type, consisting of comparative small cells through which the brine solution passes in a continuous stream. Such a cell furnishes a liquor showing a strength of only about 3 to 4 grams of active chlorine per liter.

2. The Kellner Electrolyzer.—This apparatus consists of a shallow stone-ware tank divided into a large number of narrow cells by means of vertical glass plates so arranged that the electrolyte is obliged to take a zigzag course in its passage through the electrolyzer. The electrodes are constructed of platinum-iridium gauze, and are arranged

horizontally with the anodes below the cathodes so that the chlorine liberated at the former may be properly absorbed by the surrounding liquid. This form of apparatus has only two terminal electrodes, and all the intervening plates are in reality secondary electrodes as in the Haas and Oettel electrolyzer. The apparatus as usually constructed requires a current of 110 volts. The brine solution is passed continually through the apparatus until the desired concentration of active chlorine is reached. A small centrifugal pump is employed to circulate the brine solution through the electrolyzer, and an external cooling vessel is also employed to keep the temperature of the liquid below 75 degrees Fahr. The life of the platinum-iridium electrodes in this form of electrolyzer is of course much longer than that of the carbon electrodes used in the Haas and Oettel form of apparatus; and even after their period of usefulness in the electrolzer is finished their scrap value is very considerable. On the other hand, they are far from being indestructible, and if the brine solution contains salts of magnesium, the deposits of these will cause trouble. The initial expense of these electrodes of the rare metals is also far more than with carbon electrodes.

3. The Hermite Cell.—The principal feature of this form of cell which distinguishes it from the others is the use of an electrolyte consisting of a mixture of sodium chloride and magnesium chloride; the use of magnesium hydroxide as a preservative, and of zinc as the negative element in the cells. The electrolyte is first made up in an elevated tank and is allowed to flow by gravity through a series of four double troughs. These troughs were formerly made of slate, but are now constructed of glazed earthenware, and each is divided by a partition which causes the electrolyte to pass twice along the length. Each division of the trough contains five sets of electrolytes; two negative electrodes of zinc enclosing one positive electrode formed by winding thin platinum wire around a perforated porcelain slab of the required shape. There are thus six separate cells containing 40 pairs of electrodes in the one unit of plant, and a current of 15 amperes at 230 volts is employed for the electrolysis; the electrodes and cells all being connected electrically in series. The electrolyte passes between each of the electrodes in its passage from the inlet to the exit; and the flow from the one through to the next is controlled by glass syphons and funnels. A small addition of sodium hydroxide solution is made to the liquid as it flows from the last trough, and glass carboys are employed to receive the mixed solution of sodium and magnesium hypochlorites.

4. The Vogelsang Electrolyzer. In its original form this electrolyzer resembled in its main constructive features the Hermite and Kellner cells, the electrolyte being made to take a zigzag course through a trough filled with a large number of secondary electrodes. Lead plates faced with platinum on the anode side, were employed as the intermediate electrodes ,and by varying the number of these the cell could be made to take a current of 85 amperes at 65 or 110 volts. The use of lead for the electrodes, however, did not prove very satisfactory, and consequently this cell has been considerably modified. The Vogelsang electrolyzer now used at Nottingham and other places abroad is constructed with composite electrodes. Narrow bars of slate extending the full width of the cell are wrapped with a sheet of platinum-iridium foil in zigzag fashion, the result being an electrode of great strength which can carry high current densities.

5. The Mather and Platt Cell. This apparatus closely resembles that of the Kellner, and is constructed with 39 electrodes, made of a platinum-iridium alloy, and with two terminal electrodes for connection to the current mains. The 40 cells of which the electrolyzer is constructed are separated by plate glass strips so arranged that the electrolyte takes a zigzag course in passing through the cell. The strength of salt solution used is 6 per cent., and outside cooling tanks are employed for both the brine solution and the electrolyzed liquor.

In connection with this discussion on the comparative value of electrolytically prepared bleaching liquors we must also consider the claim often put forth that such bleaching liquors have a much greater bleaching "efficiency" than similiar liquors prepared by chemical means. This part of the subject has been very carefully and exhaustively studied of recent years by several impartial investigators, with the results that it is now generally accepted that there is but a very slight difference, if any, between the bleaching efficiency of electrolytically prepared liquors and those prepared by chemical means, provided the chlorine be present in the same form of combination and in the same degree of concentration in the various bleaching liquors. That solutions of sodium hypochlorite are more efficient than solutions of chloride of lime there is no doubt; but this is to be attributed to the form of combination of the chlorine in the solution. When sodium hypochlorite solutions prepared by various means are compared there does not seem to be any appreciable difference in their efficiency provided the mass proportions of chlorine, alkali, and salt are the same. Important contributions to the study of this phase of the subject have been made by Fraas and Higgins, both conducting independent researches and yet arriving at the same conclusions.

SCROOPING MERCERISED COTTONS DYED WITH THE SULPHIDE DYES.

Ordinarily mercerized cotton goods are given the scroopy handle of silk by soaping and then souring. When the goods have been dyed with the sulphide dyestuffs the influence of the souring operation tends to set free the colour acid of the sulphide dye concerned, and so sulphur is formed and may become sooner or later oxidised to sulphuric acid. By this reaction taking place, either during stoving or through decatising or hot pressing, the cotton fibre becomes weakened or destroyed. To prevent this tendering action taking place it has been proposed to aftertreat the dyed material with a solution of 5 to 10 grms. of acetate of soda (or the formate, borate, or tungstate) in one litre of acetic acid solution (10 grms. of the strong acid to 990 c. c. of water). The use of this proportion of acetate of soda effects, however, only a partial hindrance to the tendering of the fibre, as the following data will demonstrate.

Egyptian yarn, 20/4, dyed sulphide black, lost after having been treated with acetic acid (10 grms. per litre), and after steaming (one hour at 1½ atmospheres), 75.82 per cent. of its original strength; by the addition of 5 grms. of acetate of soda to one litre of the acetic acid bath, 30-42 per cent.; and by the addition of 10 grms. of acetate of soda, 8.59 per cent. To protect the strength of the fibre totally

it is necessary to employ much more acetate of soda along with the acetic acid. And when the high proportion needed is reached the material does not acquire the scroopy handle. With 10 grms. of acetate of soda per litre of weak acetic acid the scroop is faintly noticeable, and with 15 grms. it disappears. The formate behaves in the same way as the acetate. An addition of 5 to 10 grms. to one litre of acid solution does not satisfactorily protect the cotton, although 20 grms. accomplishes this, but no scroop results. A borate —for instance, borax—added to the acid brightening bath does not impart much scroop to the material, and even used to the extent of 50 grms. per litre does not completely protect the fibre from becoming tendered.

Tungstate of soda is capable of imparting the scroop, but unsatisfactorily protects the fibre at a strength of 50 grms, per litre of acid. By employing boric acid for the brightening of mercerised cottons dyed with the sulphide dyes, a tendering action comes into evidence later, and the scroop imparted is not satisfactory. Lactic acid and tartaric acid have also been proposed and used with the object of imparting a silk-like handle to dyed mercerised cottons. Both these acids, however, tend to weaken cotton dyed with the sulphide dyes, and after the lapse of a comparatively short time the fibres become tendered. For instance, sulphide black dyed mercerised cotton treated with tartaric acid (10 grms. per litre) loses 67 per cent. of its original tensile strength after storing for a period of nine months; and with lactic acid it loses 59 per cent. These methods are therefore not serviceable for giving to sulphidedyed mercerised cotton a silky handle in conjunction with protecting the fibre.

According to a method comprising a recent invention (Chemischen Fabrik Griesheim-Elektron, Ger. pat. 242,933), it appears that a very satisfactory scroop may be attained by the use of lactic acid and tartaric acid in the form of the salts of both, or both acids neutralised by alkali, and at the same time the fibre is completely protected against tendering. The amount to be used depends upon the intensity of the dyeing. Taking, for instance, a 10 per cent. dyeing with thioxine black, 5 grms. of lactic acid per litre serves to impart the scroop, so that there is required about 15 grms. of lactate of soda or 7 grms. of lactic acid per litre, and 17 grms. soda ash, or 22.4 grms. of caustic soda (30 deg. B.). Two examples of working are given. Fifty lb. of mercerised yarn are dyed in the ordinary way with a sulphide black, for instance, thioxine black RTO, then washed and soaped for half-an-hour with 5 to 10 grms. of Marseilles soap per litre. After soaping, the yarn is cleared of excess liquor and passed through a liquor composed of 17 grms. of lactic acid and 7 grms. of soda ash, or 22.4 grms. of caustic soda (30 deg. B.) per litre. The yarn is manipulated in this partially neutralised acid bath for 15 to 20 minutes, and then without washing wrung out and dried. Treated in this fashion, the yarn acquires a good scroop, and its original strength is retained after steaming under pressure, or after prolonged storing. In place of the lactic acid and soda the same results may be attained by using 5 grms. of lactic acid and 15 grms. of lactate of soda. In the second example given the yarn is treated as by the first, but using in place of lactic acid 21.3 grms. of tartaric acid and 11.5 grms. of soda ash, or 36.7 grms. of caustic soda (30 deg. B.), per litre; or also 5 grms. of tartaric acid and 25 grms. of tartrate of soda per litre.—*The Textile Mercury.*

NOTES ON SPOTTING.

Well dry cleaned is half spotted. This ought to be a proverb for every spotter. To dry clean properly, dry clean benzine must always be used and plenty of it in the washing machine.

The benzine soap must also be of the best. Benzine ammonia soap is to be preferred for the brushing. A prime condition of spotting is speed, which, of course also saves money if there is work enough. Every spotter must be provided with a table covered with glass or marble for treating silk. For other fabrics a hard wood top is enough. There must be separate tables for light and dark colored articles. If there can be a third for intermediate shades, so much the better. Steam heat must, of course, he handy.

Lactic Acid is very valuable and almost unknown for taking wine stains out of colored silks and velvets, and also ecru and cream colored embroideries. The stains are padded with the acid and exposed to the air, by hanging up the goods. The stains disappear in a few hours. The acid affects neither color or dye. No rinsing is required, and the pile of the velvet is easily raised again, after the stain is gone by steaming.

Some people think the dry cleaning alone will remove old stains of coffee. This is not so, and a few stains give the spotter great trouble. The first thing is to soak them with distilled water and dabbed first with Permanganate and then with Peroxide of Hydrogen. The Oxide of Manganese is then removed with Sulphurous Acid as usual. Aniline ink stains often give trouble. A certain cure is to treat the stains first with Hydrochloric Acid and then with 96 per cent alcohol. Blood stains yield at once to glacial Acetic Acid, which, however, must not be used if the fabric has been dyed with dyewood extracts.

Stains left by scents are treated first with boiling spirit, then with ammonia and finally with a mixture of Lactic or glacial Acetic Acid. Tea, chocolate and cocoa stains are soaked with glycerine, and then bleached as above described, with Permanganate and Peroxide of Hydrogen. Oranges and colored lemonade stains turn pink if attempts are made to bleach them but boiling alcoholic Burmol removes them at once. Iodine and medicine stains usually require Cyanide of Potassium, the place to be neutralized with Acetic Acid or Formic Acid after the Cyanide has been removed with a damp sponge.

Retouching ability is always expected of a spotter. Faded places are rectified with colored pencils, a good set of which will enable a retoucher, with a good eye for color, to match any shade. If the faded place is too large for treatment with pencils it is dyed with a solution of a basic dye or of a combination of basic dyes in spirit and benzine. The solution is skillfully applied with a clean woolen pad.—*Textile Colorist.*

A good snow white is almost always wanted on mercerized lawns; 2 gills of ultramarine blue, and 2 gills of the mid or prussian blue form 1 pound standard mixing. The judgment of the finisher, of course, is always required to give a blue to suit the variations of qualities and of bleaching.

Many old dyehouses show an impossibility to remove the fog economically from the rooms, owing to the structural form of the buildings.

Practical Problems Discussed by Cotton's Readers.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so indorsed. This department is open to all.

JUST A LOOM.

BY STUDENT.

Yes, that's all it is, whether it be the loom that weaves the common, plain, simple pattern, requiring but two harnesses, just two threads warp and two picks filling to a pattern, or the more intricate and complex loom on which you see a pattern that required a skilled designer and perhaps an artist to work it into its present form; namely a Jacquard loom. It is no wonder that you hesitate if you are just a plain loomfixer, or if you are just a plain goods weaver, when you gaze at your bed spread on at your table cloth when you go home and doubt your ability to work on such fancy goods. If you are a fixer on plain goods no doubt you may be a good fixer too and still hesitate to ask even for a chance to learn as a helper in a Jacquard and dobby weave shop. Why? Well that's easy if you are honest with yourself, "because you are afraid." Before I go further rather than be misunderstood that I am not altogether overconfident of my own worth or of my own ability, I know what it is to be a plain loom fixer myself. I have been there so hear me out. First I will speak to the plain loom fixer for he is the man that needs help most, not because he is not as able a fixer as others better situated, but because he is the hardest worked. Again because he is the one entitled to the next step higher the section of dobbies or head looms.

First, when we look at the loom with the head we see it operates a greater number of harnesses. That is why we have a dobby on the loom to operate those harnesses. The body of the loom is the same and fellow fixer, your troubles will be four fifths the same as on the plain loom. The head once set right gives very little trouble from one warp to the next. The timing of your shed is the same, have the harnesses that are changing, level when the loom crank is on the bottom center. The setting's of the various parts may be found in many of the good weaving text books now on the market so I cannot give them here as it requires too much space. However, forget that it is any more than a small step from one loom to another.

Now to the dobby fixer let me say that if you will look over the Jacquard machine with me you also might see how little a jump it is after all. First the cards on the Jacquard are acting for the same purpose as your chain on the harness loom, only your chain peg lifts a latch finger and then your harness, while the hole in a card lets a needle slip through it and raises just one hook that may lift but a single thread, so you now see why so many holes are punched in the single card which is equivalent to one pick in the pattern and one bar in your harness chain. You will next notice that you have two or three pump rods in the side of this machine One belong to the shed which is held open at or just before the double crank gets vertical. The idea is to give the hook a chance to get off before the change takes place just as you do with the dobby cylinder having it bring the chain in on time. Now I think I have shown the link between the plain, the dobby and the jacquard, and have given as much detail as space and time allows. I hope I may encourage some hard working fixer to try for a step higher as after all a loom is only a just a loom.

THE HELP QUESTION.

BY D. E. M.

In the May issue of COTTON appears an article entitled "The Help Question" by a Northern overseer signing himself "F. W. G." I, too, am a Northern overseer and I am wondering if he expected to hear from anybody after writing such discriminative statements about the French people. If I had written words of that nature, I would expect to find my house surrounded by policemen and bomb throwers.

I wish to call his and other readers attention to what appears to me thoughtless and discriminating assertions that indicate a rather narrow viewpoint on the part of the writer, and to think it came from an overseer, a man who is supposed to set a good example. It is, however, only corroborative evidence that overseers, as a class, should not be judged by the short comings of the minority, any more than the French textile operatives, as a class, should be condemned because single cases of mortal turpitude may have been observed by "F. W. G."

It is very evident, however, that this man is having trouble with his help and probably has a few more French people in his employ, than any other nationality, and naturally sees more of their faults. When you have a place filled with any one nationality, you are bound to have more or less trouble, but not enough to single out that class as the prostitutes of the cotton industry. An overseer as a rule is supposed to possess the qualities of a gentleman although he can not exercise them all the time because he has so many different people to deal with and sometimes is obliged to resort to rather severe measures. But to come right out and say, "Morally and intelectually the French people as a class are a sad lot * * * and I for one do not want my sister working among such conditions and I think I speak for all men who respect decency, let alone purity" is, in my opinion, absolute evidence of a constricted vision. I have been an overseer for over ten years and have had nearly all nationalities in my departments, some pretty hard ones too, but I never yet had reason to condemn any one race because of their morals. There are good and bad in all nationalities, but it is not the morals of the operatives that should interest the overseer so much as their ability to make yarn.

O. S. Roberts has accepted the position as overseer carding at Riverside & Toxaway Mills.

SOLVING THE HELP QUESTION.

BY C. M. S.

The May issue of COTTON contained a very interesting article on the help question in the North, written by a Northern overseer employed in a Northern mill. He seems to take quite an interest in what the cotton mill companies of the South are and have been doing for some years past for the uplift of their operatives. On the other hand he shows how little is being undertaken along that line by most of the Northern mills.

This statement seems strange indeed coming from the pen of a Northern overseer after all that has been said and written by attachees of the Bureau of Labor and some others from the North, setting forth the depraved conditions existing in and around the Southern cotton mills. However, we know that such stories usually originate from fanatical persons who are trying to spread discord, and prejudice those who are not acquainted with conditions as they really exist between the operator and operative in the Southern mills. The cotton mill help situation in the South is gradually being worked out along lines beneficial and satisfactory to both corporation and operative, and has already begun to bear fruit which in time will yield an abundant harvest. This will prove that some of the progressive men at the head of Southern cotton mills hit upon the right idea when they showed to the world that the secret of success with help lies along the lines of wisdom, justice and moderation. That they were too much alive to their present and future interests to make the mistake of introducing the foreign emigrant help in their mills, which in all probability would have produced the same effect in time as it has already done in the North, that of driving out the native born help.

This class of operatives are easily controlled and make good loyal help, unbiased in principle and unaffected by the yoke of unionism. Just and kind treatment begets love and obedience, and in turn produces satisfaction, happiness and contentment. The mill owner should be satisfied with a reasonable days work at a reasonable price, bearing in mind that the help are human, and strew along the road of toil and labor some kindness and tokens of appreciation for services rendered, which in turn produces happiness, contentment and loyalty in the operative, who at the same time enjoys the satisfaction of knowing that his or her services are appreciated and that there is a human and sympathetic heart presiding over them that is ever ready to temper justice with mercy. Such a man bears toward each of his employees a feeling that they are all of one big family, that he stands toward them as a just and kind father ever willing to do what he can for their welfare, treating them with consideration, demonstrating to them that he is alive to their best interests and that he is their friend as well as their employer. By this course the hearts of these people can be won, for as a rule working people are easily touched, they appreciate a kindness and are ever willing to show their loyalty and gratitude, thus rendering a service of love instead of from fear.

The world is gradually awakening to the fact that people have honor and some of the states are putting their convicts on honor conditions. The sooner "tight fisted" and "short sighted" corporations shake these scales from their eyes and get busy and realize that there is a better and easier way of controlling help than the principle of "big I and insignificant you," the quicker will results show up. That old motto has been discarded by many of the leading business concerns of the country, which in turn is cementing the bond between their labor and themselves. It is true that the North has a serious proposition to face in handling its foreign help particularly those from the South of Europe who have been taught socialism, unionism, syndicalism and all the other isms from the cradle up and have grown to believe that every man's hand is against them, that a capitalist was a man to be mistrusted as well as the man holding a public office. Consequently this spirit of mistrust and hatred for any and all who are not of their class is born in them. Their living conditions while at home, show little thought or care for health, decency or morality. Occupying crowded rooms and paying scant attention to the sanitary conditions or physical comforts of life; hearing anarchy and talks of strikes day in and day out; ignorant of the reason and necessity for the laws and customs of this, their adopted country; they are ever ready to listen to and be influenced by the anarchistic oratory of syndicalism's paid agitators. This is what the Northern mill is up against who operates with these foreigners. Perhaps I have made it a little strong as there are always exceptions to the rule, but as a class these southern European operatives are a sad lot and if they are ever reached it will be by strict regulations and vigilance, and at the same time it should be proven to them that the management does not want to defraud or swindle them, but is taking an interest in elevating them on to a higher plane both morally and mentally. Teach them that they are human, that they have a heart that can be touched and that there is a brighter side of life for them—thus they should be taken by the hand and shown the way.

Turn on the light so they can see and show them by precept and example, not simply by a few words, but by acts. Get their confidence and show them how much more there is in life for them by relinquishing the old life and becoming as it were a new person. This transformation might be accomplished by making the life of these people a bit easier and a bit more comfortable. Provide for the future by showing an appreciation for services rendered. Many factories are doing this and cashing in on the results. Some companies have devised a generous pension system, thus showing appreciation of long faithful service. Others teach their operatives to be saving, receiving their savings in a special savings department and paying a good rate of interest on each deposit.

The National Cash Register Company for many years has initiated a great variety of methods for improving the condition of their employees. Among other things they have transformed with ideal homes the section of Dayton, Ohio, in which their great plant is located. In pensioning employees or in providing for their present comfort, these corporations are not doing charity work. Aside from all moral considerations it pays. The man who works under favorable surroundings, unhaunted by fear of a dependent old age, entertains a feeling of good will toward his employers and works with a degree of efficiency that can be produced only by such humanitarian methods.

A number of Southern cotton mills are striving to promote the welfare and contentment of their operatives by providing industrial and educational schools affording advantages outside of the mill. Striving to teach them the

importance of making happy homes for themselves and becoming good industrious citizens. Interesting them by offering prizes for the neatest and cleanest kept premises, the most attractive flower yards, etc., and giving baby shows, offering prizes for the cleanest and finest looking babies. This encourages neatness. Promoting branches of the Y. M. C. A. and Y. W. C. A. and furnishing reading rooms and libraries, games and pool tables, gymnasiums, swimming pools, dancing and banquet halls, etc. Encouraging secret orders, and furnishing suitable halls for same. Erecting churches for all denominations, and giving liberally towards their support. All the while the mill management endeavors to encourage and keep alive interest in these different undertakings, taking an active part and pride in what their people are doing, encouraging them to greater efforts. Some companies even furnish a trained nurse to go through the village to every house where there is sickness and where she takes charge of the case at once, and sees that medicine is taken regularly and that the house is kept clean and sanitary. Church and sunday school attendance is encouraged. Each sunday school has a Christmas tree each Christmas where the children receive presents, while some companies make the head of each family a present of a nice fat turkey, and the remainder of the operatives a package containing candies and fruits. When the spring and summer months come, they have their annual picnic, which is largely financed by the mill, which provides bountifully barbecued meats, bread, pickles, ice cream and lemonade, with music, dancing and other amusements and generally a game of baseball. These occasions are times of rejoicing and happiness in the village, the help looking forward to these occasions with pleasure.

The management enjoys making their operatives happy, fully knowing that they are cementing the bond of pleasant relations between their help and themselves, which will yield its fruit, and is money well invested. The cotton mills generally own their own village, which in latter years they are striving to build on more modern lines trying to make it attractive, convenient, and sanitary. When land is not too costly, each neat little cottage is provided with a front yard in which flowers are grown, from seed furnished by the company, while in the rear of the house a plot of ground is provided for each family to have its own vegetable garden. Pastures are furnished for the stock at no additional cost, so each family that cares to do so can keep a cow. These houses are rented to the help at a low rate, usually from 50 cents to $1.00 per month per room, which I think is an admirable plan, much better than allowing the help to buy their house on the installment plan, as the gentleman writing from the North suggested, for the following reason:

A company builds its village. They want to control that village and their help which they can do if they own the property. All undesirable help they can get rid of by telling them they will have to vacate, while if they allow the help to buy, in time they will have no village. The houses will be filled and owned by people who have left the employ of the mill, and gone into other occupations. While the village will not be kept in the neat, clean, sanitary condition it would be if the mill company owned it. Another point where this selling houses to operatives will I believe work badly; for example a family will move into the village and find that they can buy the house from the company, which they proceed to do. They make one or two payments and think that as they owe the company, they can lay down on their jobs and make poor help as they may think that they are in a position where the company will not discharge them because they partly own their house.

The former plan puts the corporation in absolute control where they can keep the village up and rid it of objectionable characters at the same time letting the operatives only pay enough rent to keep the property up and pay the interest on the money invested in houses. A mistake which many companies make is by not providing separate houses with several different numbers of rooms. Then a small family could get a small house at small rent all to itself, while a large family could do likewise with a large house. Each house being to itself, eliminates the objectionable feature of the tenement and lessens the chances of the spread of disease, and at the same time makes each tenant more contented, having more of a personal feeling for his little rented cottage, which he will take much pride in calling "home."

Progressive factory and mill owners have caught the spirit of reform. The whole industrial world has suddenly awakened to the benefits to be derived from it, but as yet only a beginning has been made. Thus far most of the efforts in this line have been sporadic and tentative. But so vital are the underlying principles of the one big family plan that wherever it has been adopted in a large way it has come to stay. So well has it paid both worker and master that many are now marveling that it was not introduced years ago. Business to be a permanent success in the larger sense, should afford not only profit, but pleasure to those engaged in it. In order to accomplish these results the hearty co-operation and loyal support of its employees should be had. All working together as one big happy family.

Stocks of cotton held by spinners throughout the world on March 1 amounted to 4,200,413 bales, as compared with 4,060,740 bales in 1911. The stocks of American cotton amounted to 2,815,942 bales, against 2,565,500 bales 12 months previously. The spindles of the world are 139,312,870 and returns by the international federation have been received from the owners of 123,564,126 spindles. In Great Britain there are 55,164,794 spindles, and firms representing 48,220,302 spindles have made returns. There are 39,776,-223 mule spindles, and 8,444,079 ring spindles. Spindles in course of construction at present are 710,332.

An importer of cotton goods in the Near East informs an American consulate that he desires to receive full width samples of American cotton sheetings and shirtings with quotations c. i. f. city in which he is located, cash against documents. It is suggested by the consul submitting the inquiry that the samples be sent to his office so that other firms may have an opportunity to examine them. The annual importation of cotton cloth into this district for the past three years was valued at over $5,000,000; practically none of which came from the United States. In applying to the Bureau of Manufacturers, Washington, D. C., refer to file No. 8370.

NOTICE.

Will the correspondent from Lowell, Mass., signing himself "A Reader of COTTON," kindly forward his name and address to this office.—Editor.

NEW MACHINERY AND TRADE NOTES.

OBITUARY.

Joseph P. Delahunty, Jr., vice president and general manager of Delahunty Dyeing Machine Co., and one of the most prominent men in the business, died on the night of June 28th at his home, corner of Luzerne and Wyoming avenues, West Pittston, Pa., as the result of an accident met with in April, when he was injured by the lurching of a sleeping car in which he was riding, throwing him with considerable force against the side of the coach and causing a severe wound on the head. While serious illness followed the injuries it was believed that Mr. Delahunty had recovered and the announcement of his death is a shocking surprise, both to the business world and to the many friends of this worthy and able man.

In the early part of April, Mr. Delahunty went to Florida to accompany his father, who had been ill while wintering there, back home. While they were making the journey by train from Jacksonville to Philadelphia the accident occurred which ultimately caused death.

Joseph P. Delahunty was a native of Troy, N. Y., where he was born on January 9, 1855, the son of Joseph P. and Emily (Pollock) Delahunty, His youth was spent in New York State, mostly at Cohoes, N. Y., where the family resided before coming to Pittston in1874. Since that date, Mr. Delahunty and his father have been conspicious in many of the noteworthy enterprises of Pittston and its vicinity, laying the foundations for several of the larger manufacturing establishments that are the pride of that community.

Naturally congenial, affable, friendly, he contributed to acquaintances the qualities which engendered deep seated respect and admiration. Good humor and cheerful friendliness radiated from the man like pleasing warmth from a welcome sun. He will be much missed by those who have had the helpful inspiration of his friendship. He leaves an aged father, approaching his 90th birthday; a bereaved wife and three children. Funeral services were held from his late home on Monday, July 1st, the Rev. T. G. Dickinson officiating.

A folder that has recently reached the editorial desk is issued by the DRAPER CO., of Hopedale, Mass., and entitled "Novelty Yarns." This is a unique little folder, illustrated in colors, showing novelty yarns of different colors which can be easily made on the twister manufactured by this company by the use of the Rhoades patent attachment for this purpose. The change gears and cams give a wide range of paterns in as high as four colors. The device can be readily applied to outstanding twisters of their make.

Another attachment which they make for twisters is known as the Smith twister stop motion. Its use on two ply work eliminates waste; prevents roller laps; and enables the help to tend more spindles, and in some cases allows the speed to be increased. This stop motion is not recommended for wet twisting and is of more value on worsted than on cotton yarns, owing to the greater value of the waste saved.

AN AUTOMATIC THIN-PLACE PREVENTER.

The CLAYTON & BENTLEY CO., of Atlanta, Ga., manufacturers of the meritorious Thin-Place Preventer for automatic looms, which has for some time been having a very remarkable sale, report that at the rate sales have been going recently they confidently expect to reach the number of 100,000 looms equipped with this device by 1913.

The following is a partial list of the mills recently applying this device to their automatic looms: Spartan Mills, Spartanburg, S. C.; Laurens Cotton Mills, Laurens, S. C.; Hartsville Cotton Mills, Hartsville, S. C.; Ella Manufacturing Co., Shelby, N. C.; Columbus Manufacturing Co., Columbus, Ga.; Roswell Manufacturing Co., Roswell, Ga.; Indian Head Mills of Ala., Cordova, Ala.; Dwight Manufacturing Co., Alabama City, Ala.; Barker Cotton Mills Co., Mobile, Ala.; and Indianapolis Bleaching Co., Indianapolis, Ind.

Mills running automatic looms and desiring to avoid trouble and loss from Thin-Places will make no mistake in applying the Clayton & Bentley device.

One of the most useful as well as ornamental of souvenirs has just reached the editorial desk from the PHILADELPHIA TEXTILE MACHINERY CO., of Philadelphia, Pa., in the form of a heavy brass match receiver. This match receiver is designed to hold a box of safety matches and also form a receptacle in the tray for burned matches. It is as it is stated on the tray, fire proof, durable, and economical. It is sent out to serve as a reminder of the Proctor Dryers made by this company which are also fire proof, durable, and economical. It is a worthy representative of the Proctor Dryer and a souvenir that will be thoroughly appreciated by every smoker in the textile trade.

WASTE.

Every manufacturer of cotton fabrics is quite frequently startled by the excessive amount of waste in his plant and immediately sets out to investigate the cause of such a loss. After locating the whereabouts of this "destroyer of revenue" a remedy must then be found. There are quite a few remedies according to the department in which the evil exists, whether in the card-room, spinning room or weaving department. The last named department is quite frequently the least suspected, since the average manufacturer thinks if the carding and spinning is running satisfactorily and with little waste, necessarily the weaving is doing so. This is too much of an assumption. Right here is where you may be feeding the "vampre." Your loom waste caused by excessive shedding is no minor consideration.

Quite a few manufacturers have found a remedy for this in the form of a soluble gum which they use in their size in conjunction with tallow or some other softening agent. This gum acts as a binder and reduces shedding to a minimum. One of the best gums on the market for this purpose is scotch size or kleister. This is sold by the ARABOL MFG. CO., 100 William St. New York. If you are having any trouble of this kind in your weave room inquire about Kleister. You will find it far superior to many compounds and decidedly economical.

C. E. RILEY, Pres.
Boston Office
65 Franklin Street

Southern Offices
814-815 Empire Bldg.,
Atlanta, Ga.

H. & B. AMERICAN MACHINE COMPANY

PAWTUCKET, R. I.

COTTON MACHINERY

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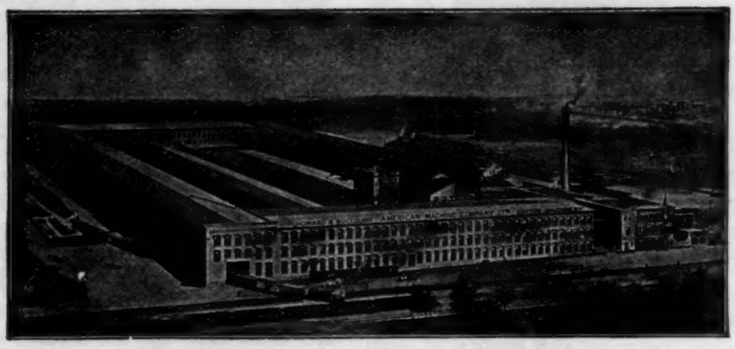

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Twisters
Cone Winders
Warpers and Slashers

WE INVITE YOUR INVESTIGATION AND COMPARISON

The air of refinement a natural wood floor imparts to the home is enhanced by the superb finish produced by Royalite. This is a varnish or floor finish which can be applied with ease and is not readily marred or scratched under footwear. It is said to be impervious to the action of water and is ready for the brush under which it works very freely. New floors as well as old floors may be treated with this floor finish and if the color and grain of the wood have been preserved they need not be coated with the ground color. All floors and interior woodwork that have already been painted and have become discolored should be thoroughly cleaned and dried and treated with one or two coats or ground color before applying this finish. Royalite is manufactured by the well known paint, color, and varnish makers, THE A. WILHELM CO., of Reading, Pa. This company having been established since 1857, know by long experience the value of quality in paints and varnishes.

The New catalogue of the GLOBE MACHINE AND FOUNDRY CO., successors to the Globe Machine Works of Frankford, Philadelphia, Pa., builders of the Denn warping machinery, has just been received. This catalogue contains an excellent half tone reproduction of the plant of this company which is equipped with the best modern machinery for the manufacture of their products. They make a specialty of warping machinery which is safeguarded with electric stop motions which operate in the creels. This company manufactures ball warpers, beam warpers, linking and warping machines, long chain beaming machines, etc. Those interested in warping machinery should write the manufacturers for a copy of their new catalogue.

MAKING PAPER BOXES TO-DAY.

Sixty-seven years ago the demand for paper boxes, was, comparatively speaking, very small. However, the possibilities of the business at that time appealed to the men who later became known as THE JOHN CROMPTON COMPANY, 328 to 336 North Randolph St., Philadelphia, Pa. They began manufacturing small high grade boxes only, and having educated their trade for this class of material through the various publicity mediums, they today do business all over the United States, in Canada and Mexico. They have a very large mail order business covering all distant points and their daily output is between 60,000 and 75,000 boxes. However, it is well to note that they still manufacture only *small high grade boxes* such as fine hosiery, candy, cigarette, round face powder, etc., not touching the regular line of hosiery, hat, shoe or folding boxes.

A prominent educator once said that the training a young man should get in schools is that which prepares him to see opportunities and to make them when he does not find him. That is what the founders of this company did sixty-seven years ago. They did not find their opportunities already made only to a very small degree, but they saw the possibilities those opportunities could assume if given the proper publicity and careful business attention. Thus we see a small concern, when starting the manufacture of paper boxes, selecting for their particular establishment only the small high grade boxes, gradually grow to the point where the yearly output of their factory is from eighteen to twenty-four million boxes. Today, their equipment is such that they are especially able to take care of rush orders requiring shipment within brief periods.

BOOK REVIEWS.

PRIMER OF SCIENTIFIC MANAGEMENT, By Frank B. Gilbreth, A. S. M. E., consulting management engineer, with an introduction by Louis D. Brandes, 108 pages. Price $1.00 net. Published by the D. Van Nostrand Co., 25 Park Place, New York City.

The principles of scientific management by F. W. Taylor was printed serially in March, April and May 1911. As a result of this publication hundreds of letters came to the publishers from readers in all parts of the world with requests for further information on the subject of the elimination of unnecessary waste in human effort. These letters were all handed to Mr. Gilbreth to answer the questions which they contained and this book is the result. This fact explains why the book is not a complete treatise on scientific management, but only answers pertinent questions that were asked by various manufacturers and others. It is well worth the persual of every works manager and superintendent.

One hundred and fifty years ago, in the days of homespun, when spinning and weaving were a prominent part of each household's duties, the value and quality of cloth was a matter of common knowledge. Familarity with the process of making fabrics brought a general acquaintance with cloth that does not now exist.

Many persons today do not know the difference between worsteds and woolens; many more cannot distinguish those of a good and those of an inferior grade. This ignorance of quality is not to be wondered at when we consider that what was once a part of household work has now become a great national industry.

The inability to judge cloth is a matter not only detrimental to the interests of the consumer but also to those of the manufacturer. No reputable manufacturer can afford to give the consumer less than the full value for his money, but that the consumer may know that the goods are as represented is necessary that he should understand something about the progress of manufacturers and thus be assisted in determining the quality of the article.

Appreciating that knowledge brings discrimination, that discrimination means the selection and purchase of the best goods in any line, the AMERICAN WOOLEN CO., of Boston, Mass., have prepared a few facts as to the woolen industry of America, together with a short description of the manufacture of worsteds and woolens entitled "From Wool to Cloth."

It will be appreciated that limitations of space make it impracticable to illustrate every process used in the manufacture of woolen and worsted cloth, but the text makes quite clear the general method of manufacture. Those interested in the production of goods of this description should secure a copy of this interesting little booklet.

Many softening oils cannot stand heat; they get sour in the hot season. This difficulty has been overcome by THE ARABOL MFG. CO., 100 William St., New York, in producing their soluble softening oil. It is an artical of absolute uniformity, all the year around. It is easy to handle and satisfies the needs of the textile manufacturer in every respect, and easily proves its superiority to tallow and other oils and greases.

THE DRAPER COMPANY, of Hopedale, Mass., recently sent a phamphlet to its employees who occupy tenements owned by the company, offering inducements in the form of prizes for better care of the yards and houses occupied by such employees. These prizes will be awarded on the condition of the premises for the season and the yards will be inspected by the committee from time to time. This committee on yard prizes have had placed at their disposal the sum of $300, which will be distributed as follows: One first prize of $10.00; twelve second prizes of $7.50 each and forty third prizes of $5.00 each. An additional sum of $75.00 will be distributed among the tenents of the company living in the houses on Prospect Heights, Milford. The prizes will be awarded next Nivember. The committee on yard prizes appointed to look after the contest are Frank J. Dutcher, William J. Graham, and E. Dana Osgood.

THE BERLIN ANILINE WORKS, 213 Water St., New York City are sending to the trade their color card of chrome, fast brown R. which is a chrome wool dye, dyed acid in the usual manner and developed by after treatment with bichromate of potash. It may be also be advantageously applied to dyeing chrome mordented materials. Copies of this color card may be secured upon application.

The textile branch of the School of Industrial Art of the Pennsylvania Museum, better known as the Philadelphia Textile School, has just brought the school year to a successful close. Their new circular for 1912-13 is being distributed to those interested.

The Pennsylvania Museum and the School of Industrial Art was incorporated on the 26th day of February 1876. The necessity of affording facilities for technical instruction however, became apparent very early in the history of the school and the Philadelphia Textile School was organized in 1884. The department of chemistry and dyeing was added to the Textile School in 1887 and the departments of wool carding and spinning and cloth finishings were added in 1894. In 1896 it was decided to add a department of cotton carding and spinning and 1898 a department of worsted yarn manufacture was established. At the present time, the Philadelphia Textile School comprises of the following departments: fabric structure and design in cotton, wool, worsted and silk; warp preparation and weaving; color harmony and figured design; chemistry, dyeing, and printing; wool yarn manufacture; worsted yarn manufacture; cotton yarn manufacture; hosiery and knitting; and finishing.

THE FARBENFABRIKEN OF ELBERFELD CO., 117 Hudson St., New York City, are sending to the trade color cards as follows: Parazole F B; Naphtylamine Green T; Acid Violet 7 B N; Wool Fast Brown T Pat; Alizarine Sky Blue 3R; Wool Fast Blue 5 G Extra; Algole Red F F. Extra Paste; Benzo Fast Brown G. L. and Benzo Brown R. L.; Diazo Brown 3 R. B.; and Paranitroorthoanisidine.

The June issue of the *Cord Age* has just been received. This is the birthday number of the *Cord Age* which is now six months old. This little magazine is published by the AMERICAN MANUFACTURING CO., of Brooklyn, N. Y., and is of interest to all users of rope no matter in what form. Send your name on a post card.

Barrett Specification Roofs

How to Inspect Barrett Specification Roofs

FOR the protection of Architects, Engineers, Roofers and owners of buildings we direct attention to the fact that a roof is NOT a Barrett Specification Roof unless the materials are applied as directed in The Barrett Specification, and unless each roll of Tarred Felt and each barrel of Pitch bears the labels, facsimiles of which are shown herewith.

Fac-similes of Labels

To comply with the Barrett Specification, the materials necessary for each one hundred (100) square feet of completed roof are approximately as follows:—

Over Boards

108 square feet	Sheathing paper
80 to 85 lbs	Specification Tarred Felt
120 to 160 lbs	Specification Pitch
400 lbs	Gravel
or	
300 lbs	Slag

Over Concrete

80 to 85 lbs	Specification Tarred Felt
180 to 225 lbs	Specification Pitch
400 lbs	Gravel
or	
300 lbs	Slag

In estimating Felt the average weight is practically fifteen (15) pounds per hundred (100) square feet, single thickness, and about ten (10) per cent additional is required for laps.

In estimating Pitch the weather conditions and expertness of the workmen will affect the amount necessary for the moppings and to properly embed Gravel or Slag.

The only practical way of determining that Felt and Pitch have been applied as specified is to cut the roof, and as a protection to the responsible roofing contractor, the National Association Master Gravel & Slag Roofers of America recommend cutting a slit into the roof not less than three (3) feet long at right angles to the way the felt is laid, before the Gravel or Slag is applied. The cut can be repaired by sticking five (5) thicknesses of Felt over it, and the spot will then be as strong as any part of the roof.

The contract price for a Barrett Specification Roof should not be less than the cost of the materials specified, plus the cost of laying, and a reasonable amount for profit. Thorough inspection of materials and workmanship is recommended.

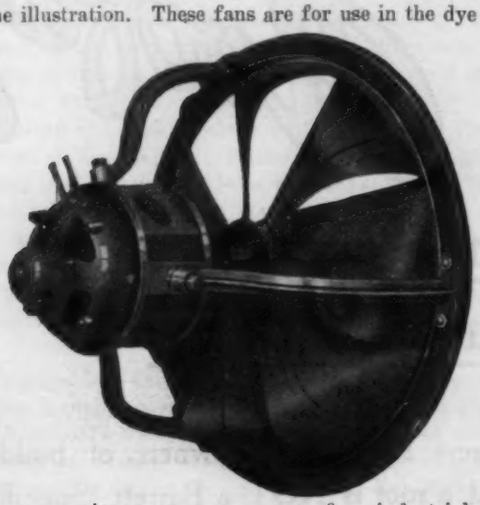
BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Kansas City Cleveland
Cincinnati Minneapolis Pittsburg New Orleans Seattle London, Eng.
The Paterson Mfg. Co., Ltd. Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S.

TRADE B MARK

NEW WATSON VENTILATING FANS.

In many industries the need for continuous change of air is being recognized. It is desirable to remove used air to make room for fresh air. The demand for motor driven ventilating fan units has led THE MECHANICAL APPLIANCE Co., of Milwaukee, makers of Watson motors, to standardize a line of Watson ventilating fans, one of which is shown in the illustration. These fans are for use in the dye room,



acid room, engine room or any part of an industrial plant as well as for the office or school building, theater, etc. They are made for use on direct current and alternating current systems in sizes of 18 inch to 42 inch, capable of removing from 3,400 cubic feet to 20,000 cubic feet per minute. Standard Watson motors are used and a specially designed fan blade.

James N. Williamson & Sons, Burlington, N. C., the Pee Dee Mfg. Co., of Rockingham, N. C., the Lane Cotton Mills, New Orleans, La., the Manchester Cotton Mills, Manchester, Ga., and N. S. Turner, of Covington, Ga., have installed the Kinkead apparatus for aligning and leveling shafting. This appliance is manufactured by the KINKEAD MFG. CO., 7 Water Street, Boston, Mass.

A copy of the May issue of *The Mechanic* has reached the editorial desk and it contains a number of articles of interest to those who use wood working machines. This little journal is published monthly by the H. B. SMITH MACHINE Co., of Smithville, N. J. If you have not already seen a copy of *The Mechanic,* it will interest you to write for one at once.

The New Bedford Textile School, under the able management of William E. Hatch, A. M., the president and managing director is gradually growing into prominence. It has recently issued its new catalogue for 1912-1913 which contains a well illustrated account of the school and also a description of the various departments and courses of instruction and classes. Located as it is in the center of the city of New Bedford, on the main street car line of the city which connects with the mill districts it is readily accessible to the mill operatives who attend the evening sessions of the school. It is also near the residential part of the city and is therefore conveniently situated for non-resident pupils, who take up a temporary residence in the city.

The A. N. AMES KNITTING MACHINE Co., have been incorporated under the laws of Maine, with a capital stock of $150,000 to manufacture automatic hosiery knitting machinery at Franklin, N. H. The officers of the company are President, A. N. Ames; Vice-President Seth P. Shepard; Treasurer, S. W. Jones. The directors, in addition to the officers are W. W. Edwards and Geo. P. Morris. A. N. Ames, the president, is very well known in the knit goods trade as the designer of some of the most successful knit goods machinery on the market.

Mr. Kuney, Overseer of Carding at the Brogon Mills of Anderson, S. C., has resigned and Mack Stacks overseer of carding at Riverside and Toxaway Mills has accepted the position.

MILL NEWS.

Notices of mill projects, additions or improvements are solicited for this department.

ALABAMA.

PIEDMONT. The stockholders of the Coosa Mfg. Co. have appointed A. G. Thatcher president, W. L. Verlender and Eldridge McFarland directors of their company, a committee to plan and organize a company capitalized at about $75,000 for the purpose of building a mercerizing plant at Ridgedale, near Chattanooga. This plant will probably have a weekly capacity of about twenty to twenty-five thousand pounds of yarn, the product to be obtained from the Coosa Company's mill.

TALLADEGA. The smokestack which was blown down in the recent storm at the Highland City Cotton Mill a this place is being replaced by another which is nearly completed. It is to be 100 feet in height.

HUNTSVILLE. It is reported that one of the cotton mills at this place has been purchased by Eastern capitalists.

DELAWARE.

WILMINGTON. The organization of the Diamond Mfg. Co. brings to Wilmington a new industry. Charles and William Copkis have leased the old Fox shoe factory at the corner of Fifth and Walnut streets, and will begin the manufacture of underwear.

GEORGIA.

COLUMBUS. It is rumored that the Meritas Mills of this place are to make considerable additions to their present equipment in the near future. The extent of the present additions has not been learned, but it is understood that there will be an increase in all departments.

ATLANTA. It is reported that the Exposition Cotton Mills at this place has just placed a contract for 16,000 additional spindles and other machinery. The total cost is approximately $200,000.

LaGRANGE. The Elm City Cotton Mills have recently contracted for painting the entire property, including the tenement houses. The contract was given to Charles K. Hamrick, of LaGrange.

CHICKAMAUGA. It is locally reported that a large cotton mill is to be built at this place by the Crystal Bleachery Co.

GRIFFIN. The Griffin Mfg. Co., manufacturers of ticking, plaids, etc., have appointed Pinkham & Greery, of New York, as selling agents.

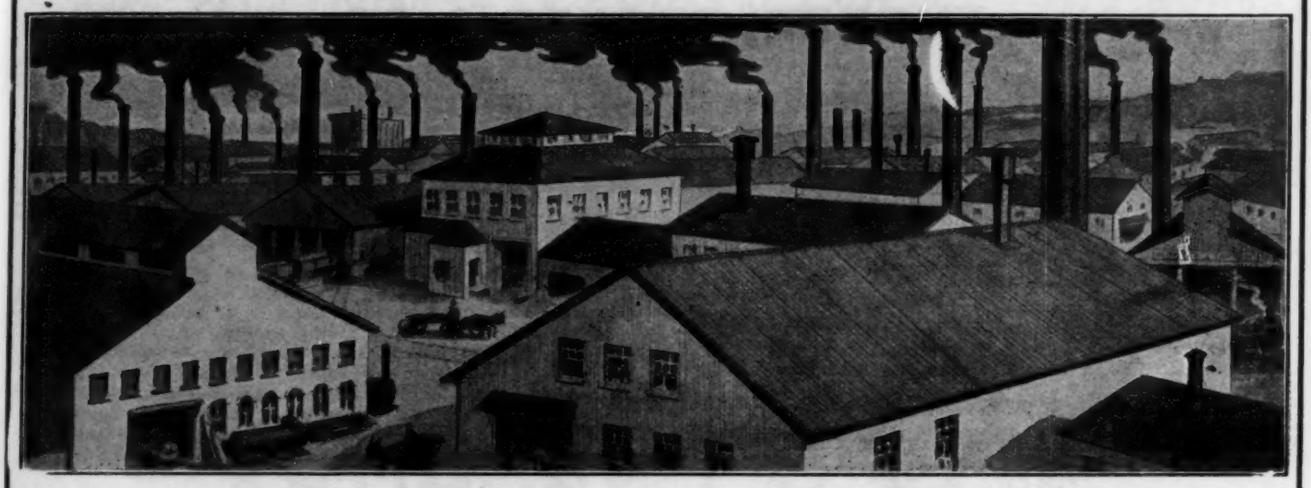
SENOIA. It is reported that the Senoia Duck Mill will be started within a short time. The mill was built about two years ago but was not started. The mill is equipped with 100 looms for ducks.

DUBLIN. The Oconee River Cotton Mills at Eastman has organized with $185,000 capital stock to succeed the Dublin Cotton Mills. W. N. Leitch is president, M. H. Edwards, vice-president, and C. H. Peacock, secretary and treasurer. General Manager S. C. Smyly will be at the head of the new organization.

WEST POINT. The West Point Mfg. Co. have recently purchased 5,000 spindles, 38 looms, 36 cards, and complimentary card room machinery for the Shawmut Mills of this place. These mills manufacture ducks.

NEWNAN. The Newnan Cotton Mill is installing 15,000 additional spindles to its plant.

LaFAYETTE. At a meeting of the directors of the Union Cotton Mills, the proposition of buying 242 automatic Draper



THERE ARE OVER 300 IMITATIONS OF

RU-BER-OID ROOFING

Some of these imitations look like RU-BER-OID, but that is merely on the surface. The roofing buyer cannot see what is underneath, or he would not be fooled into buying the goods on their appearances only.

As a house built on a poor foundation cannot last, neither can a roofing founded on poor material give the service expected of it.

Take none but the genuine

RU-BER-OID

Accent on the "RU" and always spelled with one "B"

Unless the RU-BER-OID Man is shown on the outside wrapper, the roofing is not the genuine RU-BER-OID

KA-LOR-OID (Colored Ruberoid) ROOFING

RED—BROWN—GREEN

The only permanently colored prepared roofing.

The ideal roofing for Bungalows, Cottages—in fact suitable for any building where artistic effect is desired.

The Standard Paint Company,

100 William Street, NEW YORK

BOSTON PHILADELPHIA CHICAGO
DENVER DALLAS

TURNER, TUCKER & CO.

Successors to A. B. Turner & Co. and Philip M. Tucker.

INVESTMENT SECURITIES.

MANUFACTURING CO. SHARES. MILL STOCKS. 24 Milk St., Boston. 111 Broadway, New York.

looms to replace the looms at present in the mills was discussed. The directors expressed themselves as favoring the investment and it is probably that the machinery will be purchased in the near future.

MARYLAND.

BALTIMORE. Contracts have been placed by the Mt. Vernon Knitting Mill at this place for five knitters and one looper.

BALTIMORE. A long time lease has been taken by Hamburger, Wolfe and Weiller on a factory which takes up half a block and is bounded by Bayard, Carroll, and Bush streets. Necessary alterations will be made in this factory and the new lessees will take possession by August 15th. They intend to manufacture pajamas and underwear.

MASSACHUSETTS.

MONSON. Heimann & Liphden are tearing down the bleachery in connection with their plant at this place and will build a new one two stories high which will greatly increase its capacity.

FALL RIVER. A published report to the effect that the Crystal Spring Bleachery at Assonet, Mass., is being negotiated for by the Mount Hope Finishing Company, of Dighton, Mass., is denied here. Mr. Milliken, the superintendent of the latter works is in Europe, according to a report current here, but in any event it is stated that he nor none of the parties in interest at the Mount Hope are connected with any deal for the Crystal Spring.

It is believed here, although not confirmed in any authoritative way, that plans are being developed for the extension of this property, which is located at tide-water and controls the stream and water rights on which it depends. Its dyeing and bleaching facilities have been modernized at an expense of approximately $100,000, but its indigo dyeing plant has not proved profitable because of the conditions that have lessened the profits of all indigo dye plants in recent years.

An addition of a mercerizing plant and equipment for handling many of the fine cottons that are now so widely produced could be made for a nominal sum, and it is thought here that the plans actually under way have that purpose in view. The implication heard in some quarters that a sale or a reorganization of a financial character is under way is absolutely without foundation, but it cannot be confirmed at this time just what phase contemplated improvements will assume in the near future.

MISSISSIPPI.

BATESVILLE. The plant of the Panola Cordage Co. has been sold to H. T. French and others of Anderson, S. C. Mr. French was formerly connected with the Conneross Yarn Mills of Anderson as superintendent. This plant was formerly known as the Batesville Yarn & Cordage Co., and went under that name for about four years. In 1911 J. B. West reorganized the mill and incorporated under the present name with a capital of $20,000.

NEW HAMPSHIRE.

MANCHESTER. It is reported that the Barmen Webbing Co., of Gossville, N. H., is arranging to remove its plant to this place. They will probably locate on the bank of the Merrimack River. The opportunity to extend the plant in Manchester and the inability of the company to secure desirable help at Gossville are probably the reasons for the company making the change.

NORTH CAROLINA.

STATESVILLE. The Bradford Knitting Mill, Inc., of this place, has installed 26 double-sole, high spliced heel hosiery machines, together with a bleaching plant and other equipment to manufacture high grade and combed mercerized ladies' and men's hose.

GREENSBORO. The White Oak Mills of this place are to add 126 looms. Contract has already been awarded.

HENDERSON. Ground has been broken for the new cotton mill to be built in connection with the chain of Cooper Mills at this city and construction will commence at an early date. It is rumored that they expect to have the new mill completed and ready for operation by September or a little later.

RUTHERFORDTON. The Cleghorn Mills are building a second story to the addition recently built to this mill in order to give more room for possible increase in equipment.

MAYESWORTH. The Mayes Mfg. Co. at this place is erecting a standpipe.

CHARLOTTE. Surveyors have been at work on Shuttlemyre Shoals twelve miles west of Shelby, N. C., measuring the fall, the volume of water, and the flow at this point. It is humored that these surveys means another cotton mill soon.

SALISBURY. The Princeton Cotton Mill Co. has been organized at this place with a capital stock of $50,000. M. L. Jackson is president; T. B. Marsh, Jr., vice-president; and T. B. Marsh, Sr., secretary and treasurer. It is intended to manufacture a fine grade of table damask. Plans and specifications for a one-story brick building 224 feet by 54 feet has been made. The textile machinery will comprise 3,000 spindles and 36 looms, driven by electric power.

SHELBY. A new building for the Ella Mfg. Co. is to be a weave shed one story high, having capacity for 240 looms and also a cloth room.

HIGH POINT. The branch of the Durham Hosiery Mills of High Point is to build a three-story addition to the present mill 90 x 100 feet. Contract for the building has been awarded to C. P. Thompson & Bros., of Charlotte.

LUMBERTON. The Lumberton & Dresden Cotton Mills has contracted with the Yadkin River Power Co. for electric power. A sub-station will be built and the company expects to furnish the mills with power by November 1st. The Dresden Mills have 10,000 spindles driven by electricity now. The plant of the Lumberton Mills is also equipped for a steam drive.

CHERRYVILLE. The Bellville Mills are installing an equipment of humidifiers at this place.

CHARLOTTE. The Thayer Mfg. Co. has awarded the contract for their new buildings to the Fiske-Carter Construction Co. These buildings include a spinning mill 150 x 225 feet, two stories, a weaving mill 163 x 210 feet, one story with basement, and cottages for approximately 500 operatives.

RHODE ISLAND.

WOONSOCKET. The Macrode Fibre Spool Co., of this place, are preparing to occupy the entire three-story building in which they are now located, taking the two additional floors. Extensive improvements are being made.

SOUTH CAROLINA.

WALHALLA. The Hetrick Hosiery Mills of this place will build an addition in the form of an L three stories high, 65 1-2 feet long and 26 feet wide. This building will be of reinforced concrete, monolithic construction, and will be equipped for storing supplies, a paper box plant, looping room, etc. Additional machinery will be ordered for installing during August. The company now has 168 knitting machines, and dyeing and finishing equipment driven by steam power.

WALHALLA. The Walhalla Cotton Mills of this place have added two new warpers and a stamping machine to their equipment.

ROCK HILL. The Harriss Mills of this place have let the contract for the erection of some new tenement houses for their mills to Love Owens, of Rock Hill. The cost is approximately $5,500.

ROCK HILL. The Highland Park Mfg. Co. of this place are increasing their fire protection by building a tank which will have a capacity of about 50,000 gallons to supply sprinklers, etc.

McCOLL. The No. 1 Mill of the Marlborough Mills is reported to be adding considerable equipment.

WARE SHOALS. The Ware Shoals Mfg. Co. have awarded a contract to J. E. Sirrine, mill architect in Greenville, to draw plans for a three-story reinforced concrete cotton mill, to be constructed at Ware Shoals. Plans are also being drawn for an amusement hall to be erected at this place. Bids for construction for both buildings will be called in soon and be referred together with the plans to the president of the company. This company is already operating 53,000 spindles at this place.

COLUMBIA. The Chesnee Mills which have been under construction in Chesnee something over a year have started cotton through their machinery and within a short time will be wholly in operation.

GREENVILLE. The Brandon Mills are to add 10,000 spindles and 200 looms to their present equipment some time during the present summer. The Brandon Mills manufacture shirt-

ARE YOU USING "AMERICAN ANILINE COLORS"?

If not, you had better send us an inquiry. It will be of benefit to you. We manufacture a full line of Aniline Colors for Textiles.

SCHOELLKOPF, HARTFORD & HANNA COMPANY, Buffalo, N. Y.

Selling Agents:—NATIONAL ANILINE & CHEMICAL CO.

New York	Boston	Philadelphia	Chicago
Milwaukee	Minneapolis	Cincinnati	Buffalo
Kansas City	Hartford	Providence	

ANTIMONY LACTATE.

¶ As has been widely noted there has been a very sharp advance in the price of Antimony Oxide. Without dilating on the cause of this advance it is of especial importance to users of Antimony products as mordants because they too, will doubtless advance. In the average Antimony product used for mordanting only a comparatively small percentage of the Antimony Oxide it contains is available, the rest is lost, because of the excessive acidity of the bath.

¶ All the Antimony Oxide in ANTIMONY LACTATE is available, hence it is particularly the mordant to use with an advancing Antimony Oxide market.

AVERY CHEMICAL CO., 88 Broad St., BOSTON.

ings and sheetings and are equipped with 80,000 spindles and 2,000 looms approximately.

LANCASTER. Another mill is contemplated for Lancaster according to reports, which state that Col. Leroy Springs is working on the promotion of a 50,000 spindle mill.

GREENVILLE. The combers for the Dunean Mills are being erected by representatives of the Whitin Machine Works.

LOCKHART. The Lockhart Mills have engaged I. W. Jones, of Milton, N. H., to build a dam on the upper shoals of the Broad River near Lockhart. It was stated sometime ago that this company was contemplating developing this water power, but under the laws of South Carolina it was necessary to have a different organization to carry out this proposition.

GREENVILLE. A new seven million dollar cotton mill company has been chartered by Lewis W. Parker, Thos. F. Parker, and H. J. Haynesworth, of this city. This is to be known as the Hampton Cotton Mills Co. It is reported that this company will acquire one group of the mills of the Parker Cotton Mills Co., and that another company will be formed to acquire a second group. No definite information is at this time attainable from the interested parties.

GREER. At a recent meeting of the stockholders of the Victor Mfg. Co., of this place, it was voted to increase the capital stock from $950,000 to an amount not exceeding $5,000,000 for the purpose of making extensive improvements in the plant, etc. Lewis W. Parker is president and M. M. Potter secretary.

KERSHAW. The Kershaw Cotton Mills which was recently incorporated, is organized with the following board of directors: LeRoy Springs, of Lancaster, S. C.; J. C. Stevens, J. M. Carson, E. M. Estredge, E. D. Blakney, L. T. Gregory, J. M. Hinson, D. B. Mungo and G. F. Cook, of Kershaw. Mr. Springs is president and Mr. Stevens vice-president. Mr. Carson, secretary and treasurer. These officers will at once arrange plans and details, so that construction can begin. Capital stock is $200,000.

TENNESSEE.

HARRIMAN. The Harriman Hosiery Mills has been organized at $100,000 capital stock by T. E. Hendrick, S. J. Clark and others, of Harriman and Chattanooga.

PRENDERGAST. It is reported that a hundred thousand dollar company will be organized at this place to build a 10,000 spindle mill. The buildings will probably be of concrete and steel or brick and stone. J. Morrow is promoting the company and it is expected that W. J. McLendon, Jr., of Marshall, N. C., will be president.

ROCKWOOD. The Rockwood Mills are having plans and specifications for a new mill drawn up by Lockwood, Greene & Co., Boston. The building will be two stories with basement, 200 and 250 feet long and 150 feet wide.

TEXAS.

DALLAS. It is locally reported that a small cotton mill is to be built at this place by the Consumer's Lignite Company.

POST CITY. The Postex Cotton Mills, of Post City, which was reported in these columns during the last few months, has awarded contracts for the building of three buildings for their new mill. These will be 130 x 520 feet, 100 x 240 feet, and 50 x 100 feet, of reinforced concrete. The Unit Construction Co., of St. Louis, Mo., was awarded contracts for the building. The capital stock of this company is $550,000.

VIRGINIA.

DANVILLE. The Riverside and Dan River Cotton Mills are having plans and specifications drawn up by Lockwood, Greene & Co., Boston, for a new mill 500 by 50 feet, three stories with basement, and a two-story weave shed 400 by 300 feet. 76,000 to 80,000 spindles and 2,000 to 2,200 looms will be the capacity.

WILLIAMSBURG. Charles C. Groat, owner of the Williamsburg Knitting Mill Co., is quoted by the Savannah Board of Trade, Savannah, Ga., as stating that he is desirous of securing a new location for his knitting mill. He says, "We are unable to secure the necessary labor to operate our mill in Williamsburg. We need 500 operatives and have been unable to secure more than 100 here. We are now operating our mills, but can only make less than one quarter of our production." This seems an excellent opportunity for some well located progressive Southern town to secure a well equipped knitting plant. While Mr. Groat favors Savannah, he might be induced to come to some other place providing all conditions were satisfactory.

RICHMOND. The King Cotton Mills Corporation has filed articles of incorporation with $100,000 capital stock located at this place. Details and plans have not been announced. H. D. Eichelberger, of Richmond, is president.

BERKLEY. The Chesapeake Knitting Mills will erect a new store house at this place with a capacity of several thousand bales of cotton and boxes of manufactured goods.

Yorkshire Gum

A SOLUBLE GUM to be used in Warp Sizing. It is especially valuable as a binder, as it combines readily with any starches and holds the Size well on the yarn. We recommend this Gum especially where drop wires are in use. Besides making a smooth, pliable warp, users of Yorkshire Gum will find the threads split readily, and "break backs" are eliminated. While giving the very best results, it is, at the same time, a most economical Size. It also prevents foaming in the box. Should use Raw Tallow or Soluble Tallow in addition. Write for formula.

ARABOL MANUFACTURING COMPANY

100 William Street, New York

Southern Sales Agent, CAMERON MacRAE, Charlotte, N. C.

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